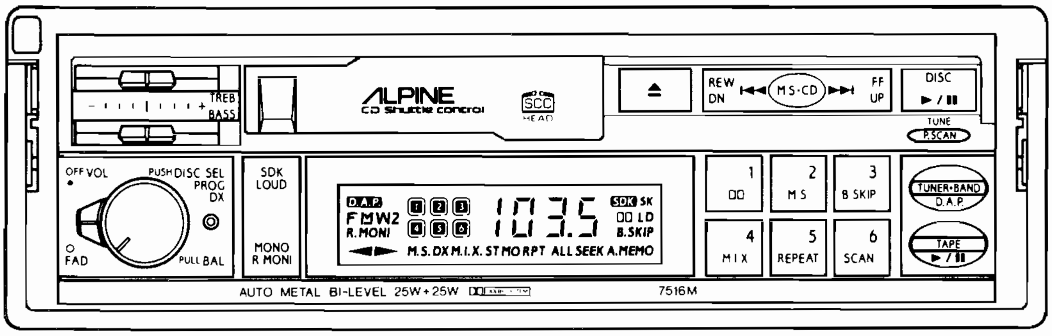
283

ALPINE SERVICE MANUAL

FM/MW/LW Cassette Receiver

CD Shuttle Controller

- For the cassette deck mechanism parts (GR75L02Y) of this model, refer to the Service Manual • GR/GR-Y Series (68P20504W04).


TREB
BASS
ALPINE
CD Shuttle control
SCC
HEAD
REW
DN
M S·CD
FF
UP
DISC
►/❚❚
TUNE
P.SCAN
OFF VOL
PUSH DISC SEL
PROG
DX
FAD
PULL BAL
SDK
LOUD
MONO
R MONI
D.A.P.
FMW2
R.MONI
103.5
SDK SK
LD
B.SKIP
M.S. DX M.I.X. ST MO RPT ALL SEEK A.MEMO
1
2
M S
3
B SKIP
4
M I X
5
REPEAT
6
SCAN
TUNER•BAND
D.A.P.
TAPE
►/❚❚
AUTO METAL BI-LEVEL 25W+25W
7516M

7516M/7516MM/7516L

Contents

Specifications ..... 3 to 4
Error Indication for CD Shuttle 5
Features (7516M/7516MM model only) ..... 5 to 6
Controls and Indicators (7516M/7516MM model only) ..... 6 to 7
Features (7516L model only) 8
Controls and Indicators (7516L model only) ..... 8 to 9
Connections ..... 11 to 13
Operation ..... 13 to 19
Precautions 20
Block Diagram ..... 21 to 22
Disassembly Instructions ..... 23 to 24
Adjustment Procedures ..... 25 to 29
Adjustment Locations ..... 30 to 31
Electrical Inspection Specification ..... 32 to 34
Operation Check 35
Description of IC Terminals ..... 36 to 39
Tuner Schematic Diagram 40
FL Display ..... 41 to 42
Parts Layout on P. C. Boards and Wiring Diagram (1/2) ..... 43 to 45
Parts Layout on P. C. Boards and Wiring Diagram (2/2) ..... 46 to 48
Schematic Diagram (1/4) ..... 49 to 51
Schematic Diagram (2/4) ..... 52 to 54
Schematic Diagram (3/4) ..... 55 to 57
Schematic Diagram (4/4) ..... 58 to 60
Electrical Parts List ..... 61 to 69
Cabinet Assembly Parts List 70
Exploded View (Cabinet) ..... 71 to 72
Packing Assembly Parts List 73
Packing Method View 73
Semi-conductor Lead Identifications ..... 74 to 80

Spare Schematic Diagram Inserted.

Specifications

FM RADIO

Intermediate Frequency	10.7 ± 0.1MHz
Frequency Range	87.5~108MHz
Usable Sensitivity (Mono, 98.1MHz)	17.2dBf
Limiting Sensitivity	17.2 ± 5dBf
S / N Ratio (Stereo 98.1MHz)	48dB
Image Rejection (106.1MHz)	40dB
IF Refection (90.1MHz)	60dB
Distortion (Input 1mV, 98.1MHz)	1%
Stereo Separation (98.1MHz)	25dB
Frequency Response (98.1MHz, Ref. 400Hz)	100Hz : 0 ± 3dB 10kHz : - 12 ± 3dB
SK Sensitivity (98.1MHz)	25.2dBf (□, ■)

MW RADIO

Intermediate Frequency	450kHz
Frequency Range	531~1,602kHz
Usable Sensitivity (999kHz)	45.2dBf
S / N Ratio (999kHz)	44dB
Image Rejection (1,404kHz)	50dB
IF Refection (603kHz)	60dB
Distortion (999kHz)	1.5%
Frequency Response (999kHz, Ref. 400Hz)	100Hz : - 3 ± 4dB 4kHz : - 12 ± 6dB

LW RADIO

Intermediate Frequency	450kHz
Frequency Range	153~281kHz
Sensitivity 20dB S / N (216kHz)	52.2dBf
S / N ratio (216kHz)	40dB
Image Rejection (216kHz)	50dB
IF Rejection (216kHz)	50dB
Distortion (216kHz)	1.5%
Frequency Response (216kHz, Ref. 400Hz)	100Hz : - 3 ± 4dB 4kHz : - 12 ± 6dB

TAPE PLAYER

Wow & Flutter (JIS, WRMS / MTT - 111N)	0.2%
Tape Speed (MTT - 111N)	4.76cm / sec. + 3 to - 1%
S / N Ratio (MTT-212)	Dolby OFF : 52dB Dolby B : 58dB
Distortion (MTT-118N)	2%
Frequency Response (Ref. 1kHz, - 3dB, MTT-256)	63Hz~12.5kHz
Separation (MTT-141N)	30dB
Crosstalk (MTT-121N)	45dB
FF & REW Time (C-60)	140 sec.

GENERAL

Power Supply	14.4V DC
Output Power / Impedance	13W / ch / 4 ohm
Pre-Output Voltage / Impedance	1V / 10k ohm
Semiconductors	22 IC's, 61 Transistors, 28 Diodes, 10 Zener Diodes (□, ■) 21 IC's, 53 Transistors, 26 Diodes, 10 Zener Diodes (▲)
Dimension (W × H × D)	Nose : 171 × 48 × 15 mm Chassis : 178 × 50 × 153 mm
Weight	2.1 kg

NOTE : Due to Continuing product improvement, specifications and designs are subject to change without notice.

□ : For 7516M Model Only, ■ : For 7516MM Model Only, ▲ : For 7516L Model Only, Others : Common.

ERROR INDICATION FOR CD SHUTTLE

INDICATION	CAUSE	SOLUTION
E01	Disc-change malfunction.	Consult your Alpine dealer.
	Disc-change malfunction.	Press the magazine eject button and pull out the Magazine. Check for error indication. Insert the magazine again. If the magazine can not be pulled out, consult your Alpine dealer.
	Magazine ejection impossible.	Press the magazine eject button. If the magazine does not eject, consult your Alpine dealer.
E02	Disc is in player mechanism.	Press the magazine eject button, and insert an empty magazine.
- - H	High Temperature.	Will disappear when the temperature returns to operation range.
EEE	Misconnection or disconnection of CD Shuttle.	Check connection between CD Shuttle and control unit.

FEATURES

(7516M/7516MM model only)

- **FULL FRONT DIN™ CHASSIS**
- **CD SHUTTLE CONTROL**
- **SCC TAPE HEAD™**
  The SCC tape head provides an exceptionally flat frequency response.
- **Q.R.B. (QUICK RELEASE BRACKET)**
  Alpine's exclusive Q.R.B. design allows for easy removal of the 7516M/7516MM, while still maintaining memory. The 7516M/7516MM may then be carried with the owner for theft prevention.
- **A. MEMO (AUTO MEMORY)**
  In the Auto Memory mode, the 6 strongest FM, MW or LW stations will automatically be stored in preset memory.
- **D.A.P. (DIRECT ACCESS PRESET)**
  D.A.P. allows the storage of FM, MW and LW presets on the same band, eliminating the need to press the TUNER/BAND button. Up to 6 FM, and MW/LW stations can be mixed in the D.A.P. Band.
- **PRESET SCAN (INTELLIGENT PRESET SCAN)**
- **FULL LOGIC DECK WITH TRUE FAST FORWARD AND REWIND**
- **RADIO MONITOR**
  Allows listening to the FM and MW/LW Tuner section while the tape is in the fast forward or rewind mode.
- **M.I.X. (RANDOM PLAY-CD only)**
- **REPEAT (TAPE, CD)**
  When activated while you are listening to your favorite music selection, the music will play over and over.
- **SCAN (TAPE, CD)**
  It scans quickly and plays the beginning of each music selection for ten seconds. When you locate the selection of your choice, press the button again to play it till the end.
- **BLANK SKIP**
  By fast advancing the tape, it skips more-than-15-second-long blanks between music selections or at the end of the tape.
- **DOLBY* B NOISE REDUCTION**
- **MUSIC SENSOR**
  Allows you to access the beginning of the current or next musical selection on the tape using Fast Forward and Fast Reverse.
- **LOUDNESS CONTROL AND INDICATOR**
- **LITETOUCH™ 30-STATION PRESETS**
  6-FM1; 6-FM2; 6-MW; 6-LW; 6-D.A.P.
- **SDK FUNCTION**
- **SELECTABLE FADER**
  This system allows you to select either the pre-amp or power amp fader mode. The pre-amp fader controls the signal level in the pre-amp stage for two amplifiers, and the power amp fader balances the front and rear speaker sound in a four-speaker system using the unit's internal power.

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol (☐☐) are trademarks of Dolby Laboratories Licensing Corporation.

CONTROLS AND INDICATORS

(7516M/7516MM model only)

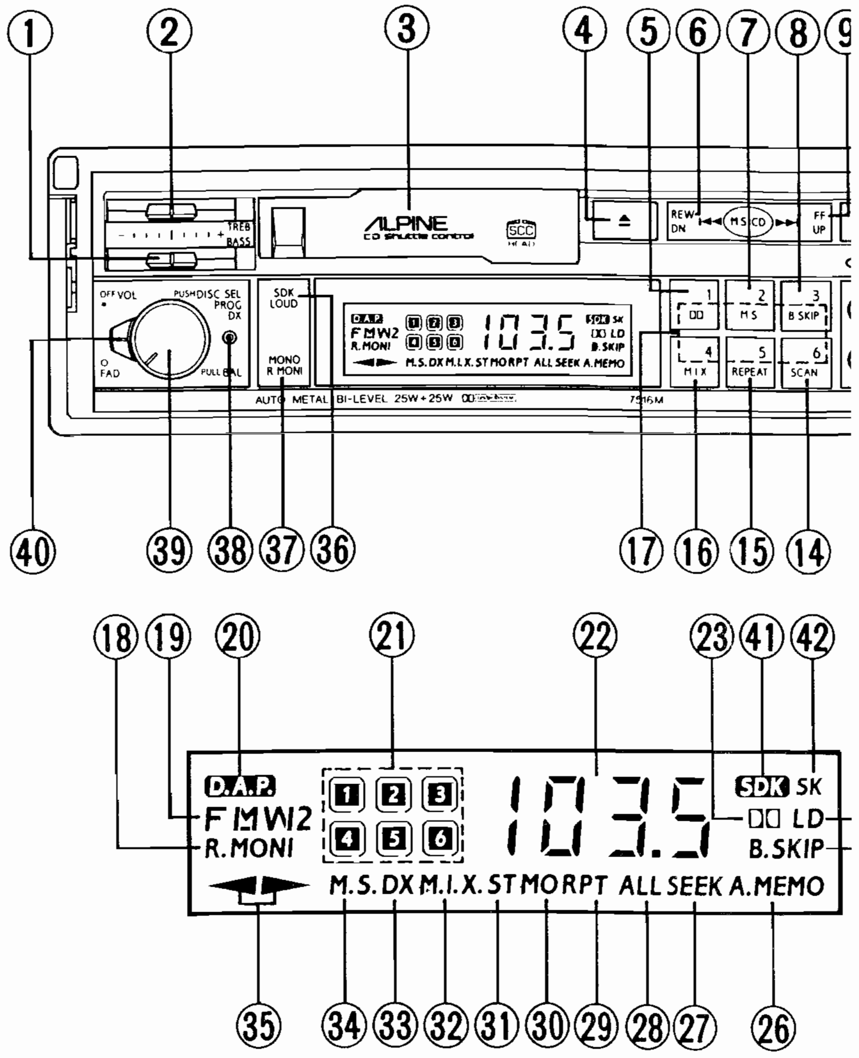


Fig. 1

FEATURES

model only)

IN™ CHASSIS
ONTROL
D™

ead provides an exceptionally flat frequency response.

RELEASE BRACKET)

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TO MEMORY)

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ACCESS PRESET)

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(INTELLIGENT PRESET SCAN)
ECK WITH TRUE FAST FORWARD AND REWIND
OR

to the FM and MW/LW Tuner section while the tape is in the fast nd mode.

M PLAY-CD only)
, CD)

while you are listening to your favorite music selection, the music will ver.

D)

and plays the beginning of each music selection for ten seconds. e the selection of your choice, press the button again to play it till the

ng the tape, it skips more-than-15-second-long blanks between music the end of the tape.

ISE REDUCTION
R

ccess the beginning of the current or next musical selection on the Forward and Fast Reverse.

NTROL AND INDICATOR
30-STATION PRESETS

6-MW; 6-LW; 6-D.A.P.

N
ADER

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CONTROLS AND INDICATORS

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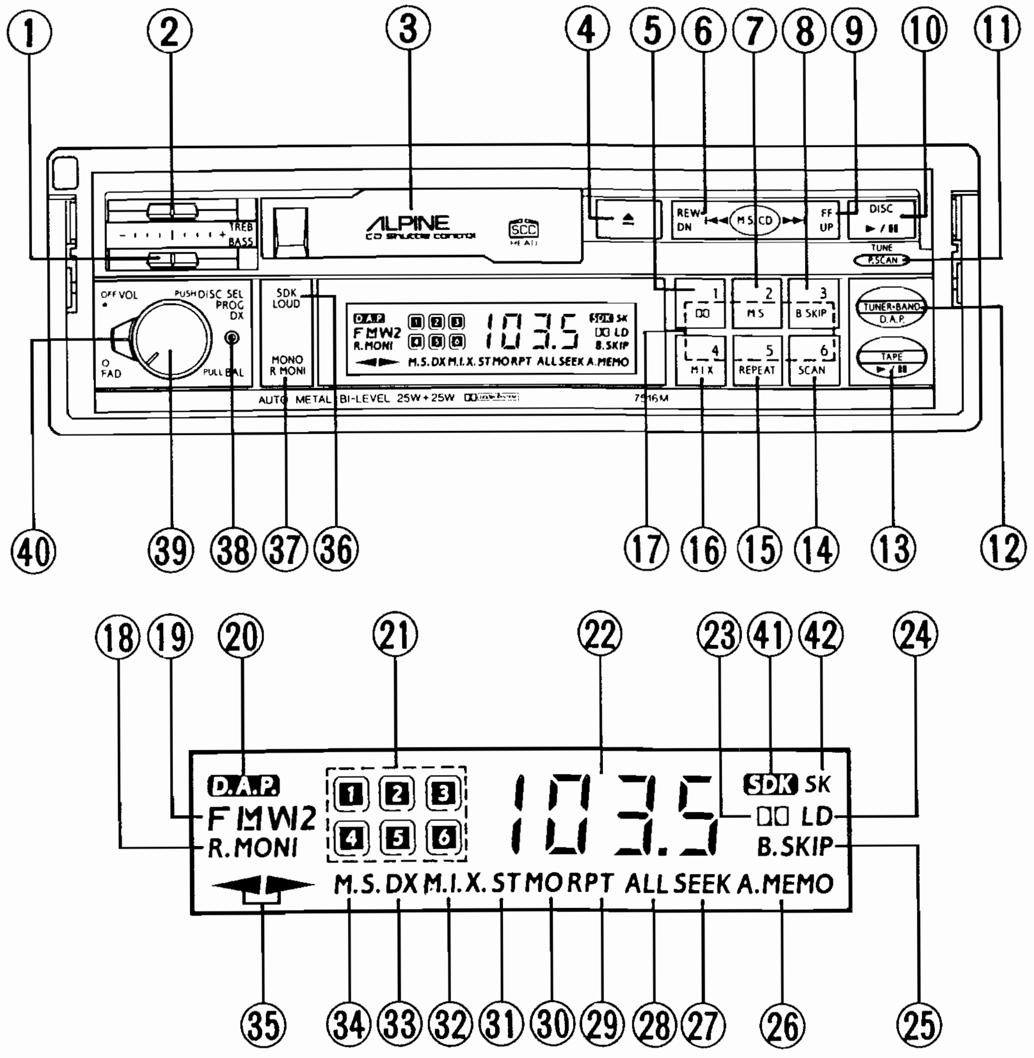
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TREB
BASS
ALPINE
OFF VOL
PUSH DISC SEL PROG DX
FAD
BAL
SDK LOUD
MONO R.MONI
REW DN
M.S CD
FF UP
DISC ►/II
TUNE P.SCAN
TUNER/BAND D.A.P.
TAPE ►/II
1
2
3
4
5
6
MS
B.SKIP
MIX
REPEAT
SCAN
AUTO METAL BI-LEVEL 25W+25W
7516M
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D.A.P.
FMW2
R.MONI
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5
6
103.5
SDK SK
ᗡᗞ LD
B.SKIP
M.S. DX M.I.X. ST MO RPT ALL SEEK A.MEMO
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Fig. 1

CONTROLS AND INDICATORS

(7516M/7516MM model only)

Refer to Fig. 1 on page 5.

① **BASS Control**
② **TREBle Control**
③ **Cassette Loading Slot**
④ **Eject Button**
⑤ **Dolby B NR Button**

⑥ **REW/DowN Button**
⑦ **M.S. (Music Sensor) Button**
⑧ **Blank SKIP Button**
⑨ **FF/UP Button**
⑩ **DISC Play/Pause Button (►/II)**

⑪ **TUNE/Preset SCAN/Auto Memory Button**
⑫ **D.A.P. (Direct Access Preset)/TUNER/BAND Button**
⑬ **TAPE Play/Pause Button (►/II)**
⑭ **SCAN Button**
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⑯ **M.I.X. Button**
⑰ **Preset Buttons**
⑱ **Radio MONItor Indicator**
⑲ **Band Indicators**
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㉚ **MOno Indicator**

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㉜ **M.I.X. Indicator**
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㉞ **M.S. Indicator**
㉟ **Tape Direction Indicators**

㊱ **SDK/LOUDness Switch**
㊲ **MONO/Radio MONItor Switch**
㊳ **Reset Switch**
㊴ **Power Switch/VOLume Control/BALance Control (PULL)/DX (Local/Distance) (PUSH)/PROGram Button (PUSH)/DISC SELect Switch (PUSH)**
㊵ **FADer Control**

㊶ **SDK Indicator**
㊷ **SK Indicator**

FEATURES

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CONTROLS AND INDICATORS

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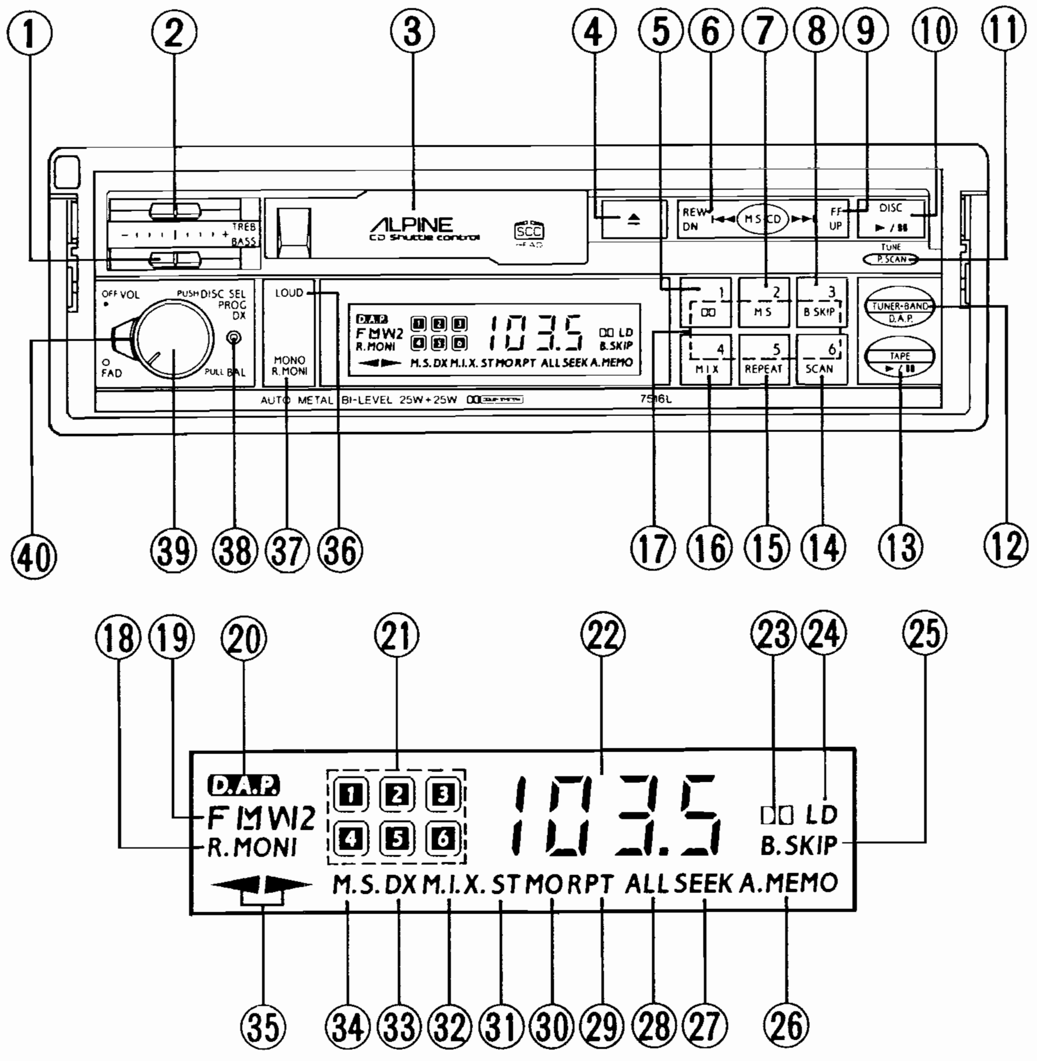

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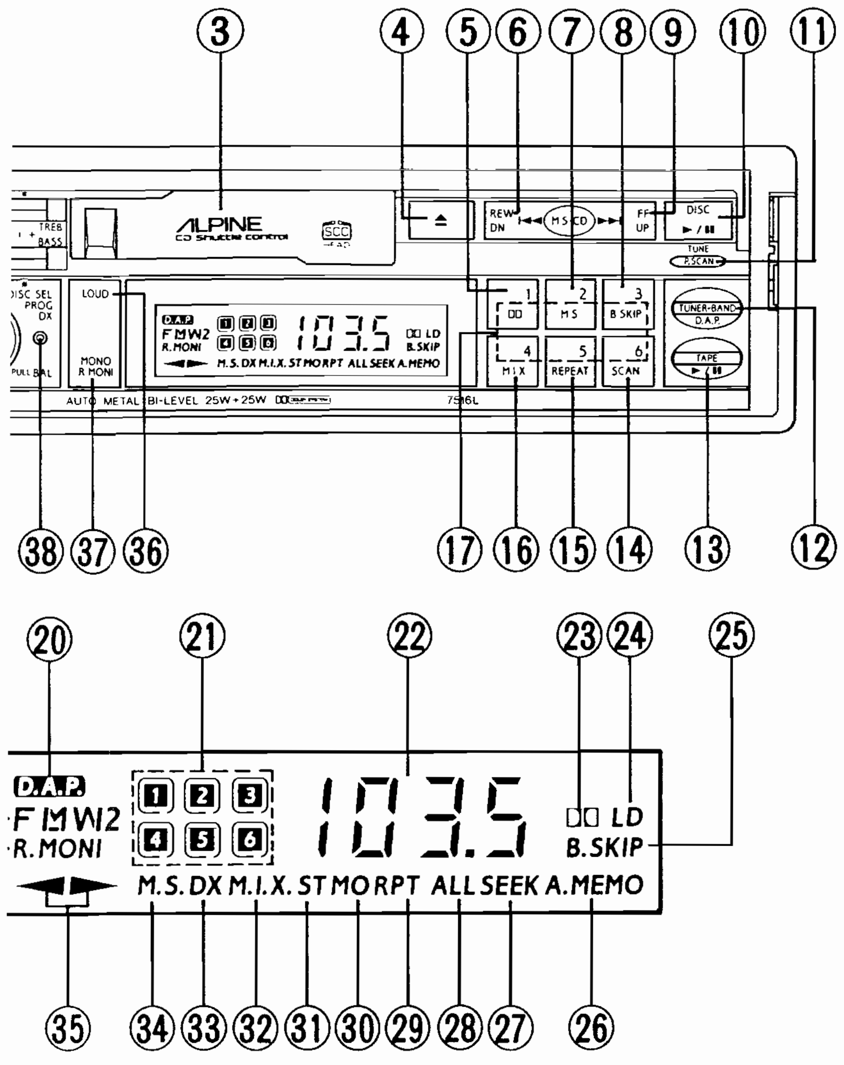
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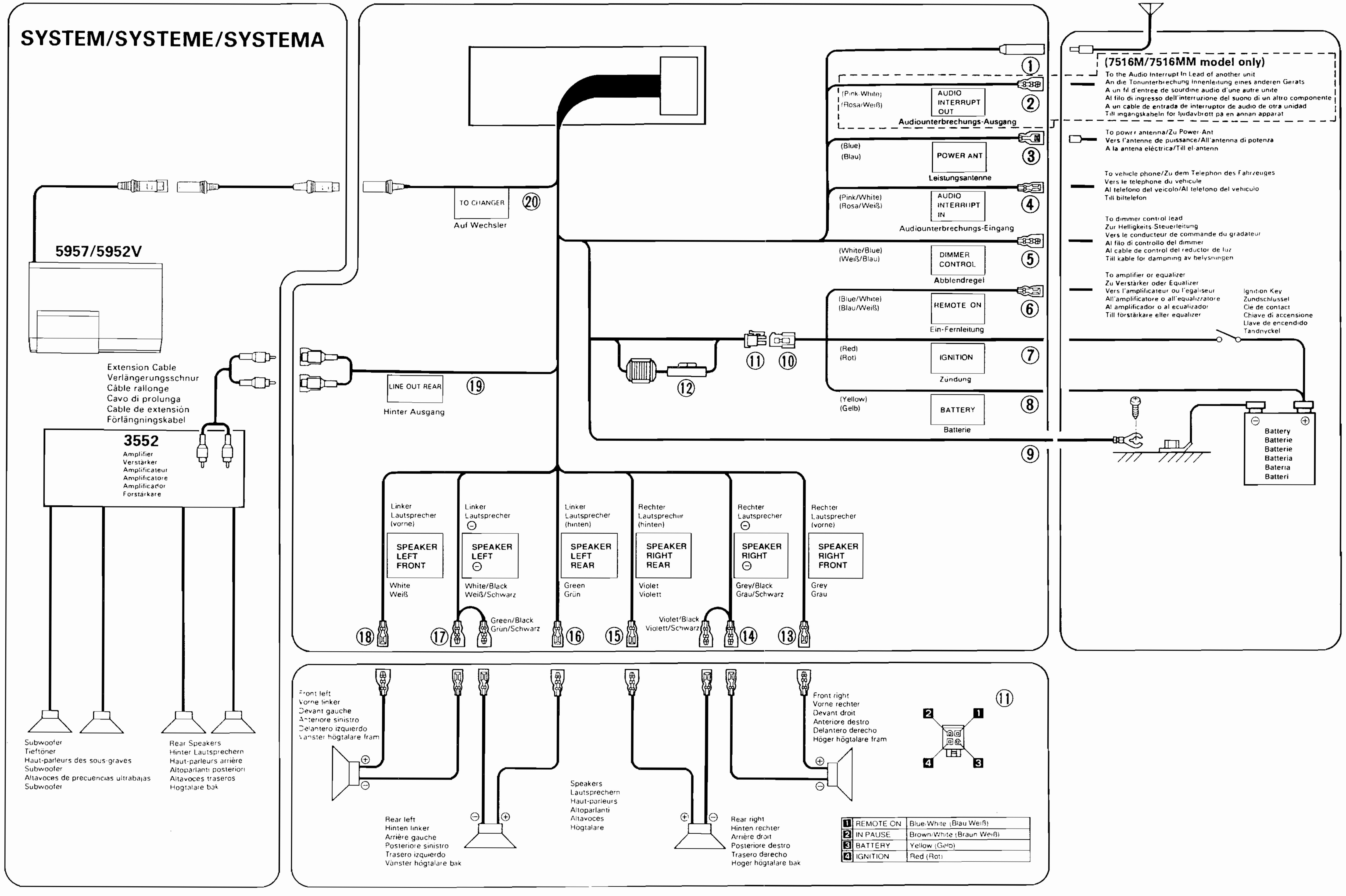
Connections


SYSTEM/SYSTEME/SYSTEMA
5957/5952V
Extension Cable
Verlängerungsschnur
Câble rallonge
Cavo di prolunga
Cable de extensión
Förlängningskabel
3552
Amplifier
Verstärker
Amplificateur
Amplificatore
Amplificador
Forstärkare
Subwoofer
Tieftöner
Haut-parleurs des sous-graves
Subwoofer
Altavoces de precuencias ultrabajas
Subwoofer
Rear Speakers
Hinter Lautsprechern
Haut-parleurs arrière
Altoparlanti posteriori
Altavoces traseros
Hogtalare bak
TO CHANGER
Auf Wechsler
⑳
LINE OUT REAR
Hinter Ausgang
⑲
⑪ ⑩
⑫
(Pink/White)
(Rosa/Weiß)
AUDIO INTERRUPT OUT
Audiounterbrechungs-Ausgang
(Blue)
(Blau)
POWER ANT
Leistungsantenne
(Pink/White)
(Rosa/Weiß)
AUDIO INTERRUPT IN
Audiounterbrechungs-Eingang
(White/Blue)
(Weiß/Blau)
DIMMER CONTROL
Abblendregel
(Blue/White)
(Blau/Weiß)
REMOTE ON
Ein-Fernleitung
(Red)
(Rot)
IGNITION
Zündung
(Yellow)
(Gelb)
BATTERY
Batterie
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
(7516M/7516MM model only)
To the Audio Interrupt In Lead of another unit
An die Tonunterbrechung Innenleitung eines anderen Gerats
A un fil d'entree de sourdine audio d'une autre unite
Al filo di ingresso dell'interruzione del suono di un altro componente
A un cable de entrada de interruptor de audio de otra unidad
Till ingangskabeln for ljudavbrott pa en annan apparat
To power antenna/Zu Power-Ant
Vers l'antenne de puissance/All'antenna di potenza
A la antena eléctrica/Till el-antenn
To vehicle phone/Zu dem Telephon des Fahrzeuges
Vers le telephone du vehicule
Al telefono del veicolo/Al telefono del vehiculo
Till biltelefon
To dimmer control lead
Zur Helligkeits-Steuerleitung
Vers le conducteur de commande du gradateur
Al filo di controllo del dimmer
Al cable de control del reductor de luz
Till kable for dampning av belysningen
To amplifier or equalizer
Zu Verstärker oder Equalizer
Vers l'amplificateur ou l'egaliseur
All'amplificatore o all'equalizzatore
Al amplificador o al ecualizador
Till förstärkare eller equalizer
Ignition Key
Zundschlussel
Clé de contact
Chiave di accensione
Llave de encendido
Tandnyckel
Battery
Batterie
Batterie
Batteria
Bateria
Batteri
Linker Lautsprecher (vorne)
SPEAKER LEFT FRONT
White
Weiß
Linker Lautsprecher ⊖
SPEAKER LEFT ⊖
White/Black
Weiß/Schwarz
Green/Black
Grün/Schwarz
Linker Lautsprecher (hinten)
SPEAKER LEFT REAR
Green
Grün
Rechter Lautsprecher (hinten)
SPEAKER RIGHT REAR
Violet
Violett
Violet/Black
Violett/Schwarz
Rechter Lautsprecher ⊖
SPEAKER RIGHT ⊖
Grey/Black
Grau/Schwarz
Rechter Lautsprecher (vorne)
SPEAKER RIGHT FRONT
Grey
Grau
⑱ ⑰ ⑯ ⑮ ⑭ ⑬
Front left
Vorne linker
Devant gauche
Anteriore sinistro
Delantero izquierdo
Vanster högtalare fram
Rear left
Hinten linker
Arrière gauche
Posteriore sinistro
Trasero izquierdo
Vänster högtalare bak
Speakers
Lautsprechern
Haut-parleurs
Altoparlanti
Altavoces
Högtalare
Rear right
Hinten rechter
Arrière droit
Posteriore destro
Trasero derecho
Hoger högtalare bak
Front right
Vorne rechter
Devant droit
Anteriore destro
Delantero derecho
Höger högtalare fram
⑪
1 2 3 4
1 REMOTE ON Blue/White (Blau Weiß)
2 IN PAUSE Brown/White (Braun Weiß)
3 BATTERY Yellow (Gelb)
4 IGNITION Red (Rot)

① **Antenna Receptacle**

② **Audio Interrupt Out Lead (Pink/White)**
(7516M/7516MM model only)

③ **Power Antenna Lead (Blue)**
When loaded with a power antenna, conr
nal of the power antenna.

④ **Audio Interrupt In Lead (Pink/White)**

⑤ **Dimmer Control Lead (White/Blue)**
Connect this lead to the lead in the vehicl
cuit that provides (+)12V when the parki
on. This will dim the unit's backlightin
parking lights are on.

⑥ **Remote Turn-On Lead (Blue/White)**
Connect this lead to the remote turn-on l
or signal processor.

⑦ **Switched Power Lead (Ignition) (Red)**
Connect this lead to an open terminal o
box or another unused power source wh
only when the ignition is turned on or in
tion.

⑧ **Battery Lead (Yellow)**
Connect this lead to the positive (+) post
tery.

⑨ **Ground Lead**
Connect this lead to a good chassis gro
Make sure the connection is made to bare
ly fastened using the sheet metal screw

⑩ **Power Wiring Harness (Included)**
Connect to the Power Supply Connecto

⑪ **Power Supply Connector**
Connect to the receptacle of Power Wir

⑫ **Fuse Holder (7A)**

⑬ **Right Front Speaker Output Lead (Gre**

⑭ **Right Speaker Output Lead (Common**

⑮ **Right Rear Speaker Output Lead (Viol**

⑯ **Left Rear Speaker Output Lead (Gree**

⑰ **Left Speaker Output Lead (Common)**

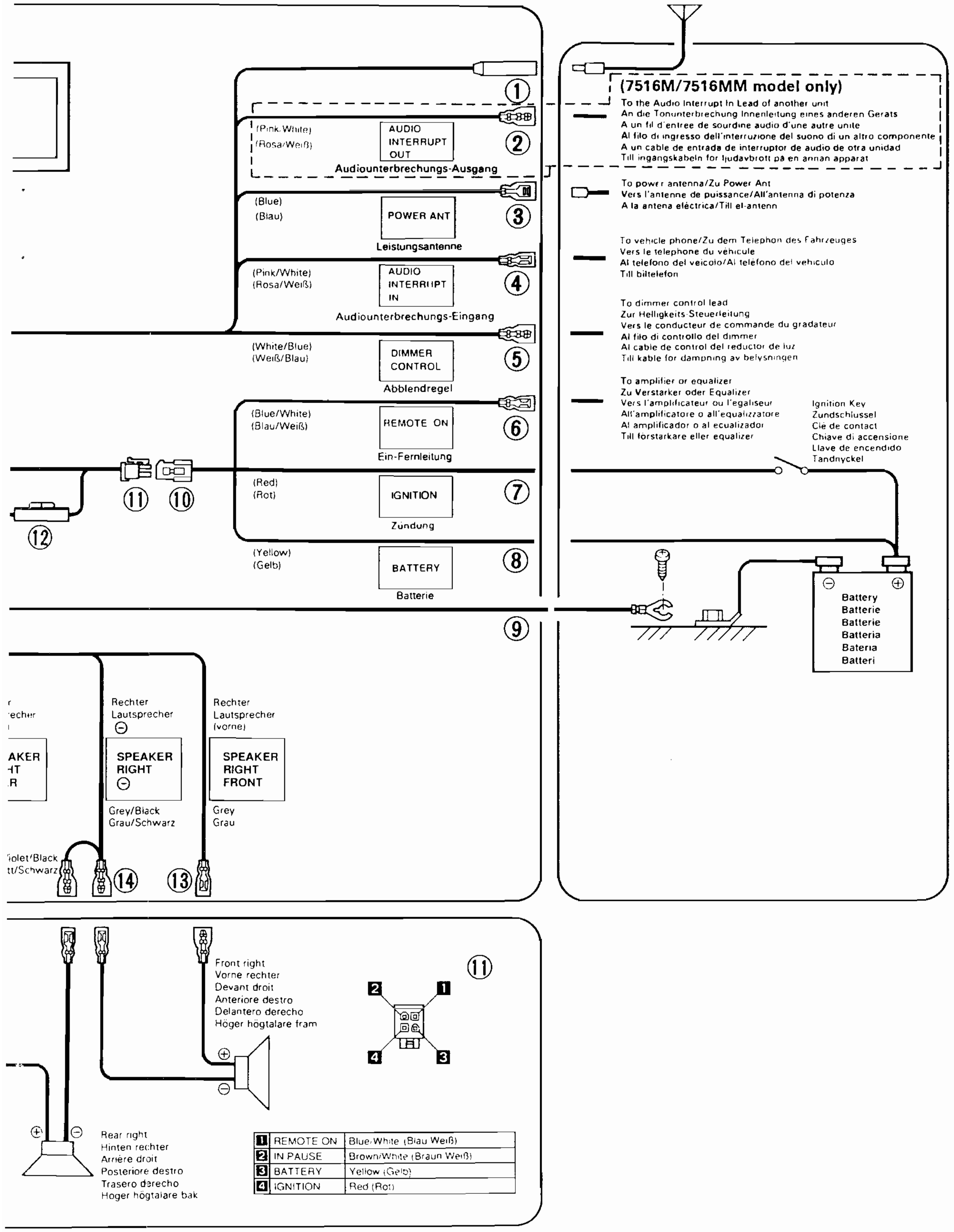
⑱ **Left Front Speaker Output Lead (Whit**

⑲ **Rear Output RCA Connectors**
RED is right and WHITE is left.

⑳ **DIN Connector**
Connect this to 5957/5952V CD Shuttle

NOTE: 5952/5952S can also be connected,
ter.

ections


①
(Pink/White)
(Rosa/Weiß)
AUDIO INTERRUPT OUT
Audiounterbrechungs-Ausgang
②
(Blue)
(Blau)
POWER ANT
Leistungsantenne
③
(Pink/White)
(Rosa/Weiß)
AUDIO INTERRUPT IN
Audiounterbrechungs-Eingang
④
(White/Blue)
(Weiß/Blau)
DIMMER CONTROL
Abblendregel
⑤
(Blue/White)
(Blau/Weiß)
REMOTE ON
Ein-Fernleitung
⑥
(Red)
(Rot)
IGNITION
Zündung
⑦
(Yellow)
(Gelb)
BATTERY
Batterie
⑧
⑨
⑪ ⑩
⑫
(7516M/7516MM model only)
To the Audio Interrupt In Lead of another unit
An die Tonunterbrechung Innenleitung eines anderen Gerats
A un fil d'entree de sourdine audio d'une autre unite
Al filo di ingresso dell'interruzione del suono di un altro componente
A un cable de entrada de interruptor de audio de otra unidad
Till ingangskabeln for ljudavbrott på en annan apparat
To power antenna/Zu Power Ant
Vers l'antenne de puissance/All'antenna di potenza
A la antena eléctrica/Till el-antenn
To vehicle phone/Zu dem Telephon des Fahrzeuges
Vers le telephone du véhicule
Al telefono del veicolo/Al teléfono del vehiculo
Till biltelefon
To dimmer control lead
Zur Helligkeits-Steuerleitung
Vers le conducteur de commande du gradateur
Al filo di controllo del dimmer
Al cable de control del reductor de luz
Till kable for dampning av belysningen
To amplifier or equalizer
Zu Verstarker oder Equalizer
Vers l'amplificateur ou l'egaliseur
All'amplificatore o all'equalizzatore
Al amplificador o al ecualizador
Till förstarkare eller equalizer
Ignition Key
Zundschlussel
Clé de contact
Chiave di accensione
Llave de encendido
Tandnyckel
Battery
Batterie
Batterie
Batteria
Bateria
Batteri
Rechter Lautsprecher ⊖
SPEAKER RIGHT ⊖
Grey/Black
Grau/Schwarz
Rechter Lautsprecher (vorne)
SPEAKER RIGHT FRONT
Grey
Grau
iolet'Black
tt/Schwarz
⑭
⑬
Front right
Vorne rechter
Devant droit
Anteriore destro
Delantero derecho
Höger högtalare fram
⊕
⊖
⑪
2
1
4
3
⊕
⊖
Rear right
Hinten rechter
Arrière droit
Posteriore destro
Trasero derecho
Hoger högtalare bak

1	REMOTE ON	Blue/White (Blau Weiß)
2	IN PAUSE	Brown/White (Braun Weiß)
3	BATTERY	Yellow (Gelb)
4	IGNITION	Red (Rot)

① **Antenna Receptacle**
② **Audio Interrupt Out Lead (Pink/White)**
(7516M/7516MM model only)
③ **Power Antenna Lead (Blue)**
When loaded with a power antenna, connect to the +B terminal of the power antenna.
④ **Audio Interrupt In Lead (Pink/White)**
⑤ **Dimmer Control Lead (White/Blue)**
Connect this lead to the lead in the vehicle's parking lights circuit that provides (+)12V when the parking lights are turned on. This will dim the unit's backlighting at night when the parking lights are on.
⑥ **Remote Turn-On Lead (Blue/White)**
Connect this lead to the remote turn-on lead of your amplifier or signal processor.
⑦ **Switched Power Lead (Ignition) (Red)**
Connect this lead to an open terminal on the vehicle's fuse box or another unused power source which provides (+)12V only when the ignition is turned on or in the accessory position.
⑧ **Battery Lead (Yellow)**
Connect this lead to the positive (+) post of the vehicle's battery.
⑨ **Ground Lead**
Connect this lead to a good chassis ground on the vehicle. Make sure the connection is made to bare metal and is securely fastened using the sheet metal screw provided.
⑩ **Power Wiring Harness (Included)**
Connect to the Power Supply Connector ⑪.
⑪ **Power Supply Connector**
Connect to the receptacle of Power Wiring Harness ⑩.
⑫ **Fuse Holder (7A)**
⑬ **Right Front Speaker Output Lead (Grey)**
⑭ **Right Speaker Output Lead (Common) (Grey/Black)**
⑮ **Right Rear Speaker Output Lead (Violet)**
⑯ **Left Rear Speaker Output Lead (Green)**
⑰ **Left Speaker Output Lead (Common) (White/Black)**
⑱ **Left Front Speaker Output Lead (White)**
⑲ **Rear Output RCA Connectors**
RED is right and WHITE is left.
⑳ **DIN Connector**
Connect this to 5957/5952V CD Shuttle only for control.

NOTE: 5952/5952S can also be connected, if you use the adapter.

OPERATION

● BASIC OPERATION

Initial System Turn-On

When operating the system for the first time after installation or after the vehicle's battery has been disconnected and reconnected, press the Reset switch ㊳ with a sharp pencil or other pointed object.

Power Switch and Volume Control ㊴

Rotating the Power switch ㊴ clockwise turns the power ON and continuously increases the volume. Rotating the control counterclockwise will continuously decrease the volume, and turn the power OFF.

NOTE:

Keep the volume control turned fully counterclockwise before your program starts. Adjust the volume by gradually turning the control clockwise once playback begins. Do not turn the control clockwise abruptly as the excessive power could damage the speakers.

Balance Control ㊴

Pull on the Volume control ㊴ and rotate to balance between left and right speakers.

Fader Control ㊵

Rotate the Fader control ㊵ for your desired front to rear volume balance.

Separate Bass and Treble Controls (①, ②)

Slide these controls to the right to increase, and to the left to decrease the level of Bass or Treble.

LOUDness

Press the LOUD switch ㊱ for more than two seconds to activate the loudness function. Press the LOUD switch again for more than two seconds to defeat this feature.

Mode Switching

1. Radio Mode
   Press the TUNER button ⑫ to put the unit into the radio mode. The Band indicator ⑲ (FM, MW or LW) will appear in the display.

2. Cassette Player Mode
   Press the TAPE button ⑬ to put the unit into the cassette player mode.

3. CD Shuttle Mode
   Press the DISC button ⑩ to put the unit into the CD mode.

OPERATION

● RADIO OPERATION

MANUAL and AUTOMATIC SEEK TUNING

The radio does not operate in the tape play mode. To listen to the radio, press the TUNER button ⑫.

1. Turn the power on by turning the Power switch ㊴ clockwise. Continue to rotate it until the desired volume level is reached.
2. Press the TUNER button ⑫ to activate the radio mode.
3. Press the TUNER button ⑫ to select the band (MW, LW, FM1, FM2). The Radio Band indicator ⑲ will be on, and the ST (stereo) indicator ㉛ will also be on during FM stereo reception.
4. Adjust the BASS ①, TREBle ②, BALance ㊴, and FADer ㊵ controls to their center positions.
5. To automatically tune, press the TUNE button ⑪ until the SEEK indicator ㉗ is displayed. Press the UP ⑨ or DN ⑥ button and the frequency changes to the next receivable station. Repeat the procedure until your desired station is obtained. When the radio reaches the upper or lower end of the band, it automatically starts scanning from the opposite end. To return to manual tuning, press the TUNE button ⑪ a second time (the SEEK indicator ㉗ disappears).
6. To manually tune, press the Tuning UP button ⑨ for higher frequency broadcasts, and press the Tuning DN button ⑥ for lower frequency broadcasts.
7. Adjust the VOLume ㊴, BASS ①, TREBle ②, BALance ㊴, and FADer ㊵ controls to suit your listening preference.
8. To switch from FM to MW/LW or vice versa, press the TUNER/BAND button ⑫.

Band Selector Button

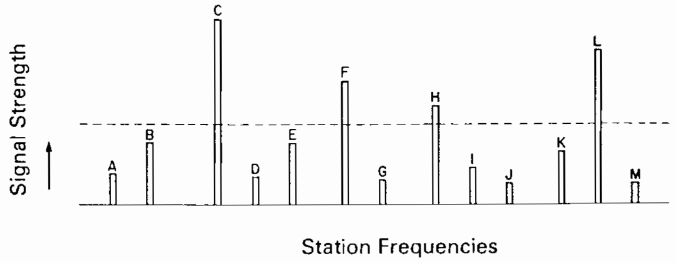
Press the BAND button ⑫ to select the desired tuning band. The Band indicator ⑲ shows your selection.

Local/Distance (DX) Sensitivity Switching for FM, MW and LW

You can select the radio SEEK sensitivity (local or distance (DX)) by pressing the DX button ㊴.

In the distance mode, with DX indication ㉝, the radio tunes in both strong and weak stations (all stations from A to M in the illustration).

In the local mode, with no DX indication ㉝, the radio tunes in only strong stations (stations C, F, H and L in the illustration below).



OPERATION

FM Stereo/Monaural Switching

You can select the Stereo/Monaural-Auto switching or Monaural mode for FM receiving by pressing the MONO switch ㊲. In the auto switching mode, you can receive stereo broadcasting in Stereo, and monaural broadcasting in MONO. The STereo ㉛ or MOno ㉚ indicator shows your reception mode. In the monaural only mode, you will always receive the broadcast in monaural even if the broadcast is stereo. The Monaural only mode quiets the noisy stereo signal of weaker broadcasts. The STereo indicator ㉛ will not appear while the Monaural only mode is selected.

Manual Memory Preset

Follow the instructions below to enter stations into preset memory:

1. Select the tuning band (FM1, FM2, MW, LW) with the TUNER/BAND button ⑫.
2. Tune in your desired station using Manual or Auto Seek tuning.
3. Press the Preset button number 1 ⑤ for more than two seconds. The matrix display ㉑ will begin to blink. The tuning band (FM1, FM2) can be changed by pressing the BAND button ⑫ if you wish to change bands. Press that preset button again while the display is blinking (within 5 seconds).
4. The frequency you selected will be placed into Preset Memory number 1 and will appear in the display.

   NOTE:

   If a preset memory has already been set in the same address, it will be cleared and the new station will be memorized.
5. Follow steps 2 – 3 for the remaining presets (2 – 6). This procedure should be followed for FM1, FM2, MW and LW.

NOTE:

While setting the memory presets you can switch back and forth between FM1 and FM2. However, while in this mode you cannot switch back and forth from MW/LW to FM.

Auto Memory Preset

1. Press the TUNE button ⑪ to light up the A. MEMO indicator ㉖.
2. Select the desired tuning band (FM1, FM2, MW or LW) with the TUNER/BAND button ⑫.

   NOTE:

   The Auto Memory Preset procedure is allowed in the D.A.P. Mode.
3. Press the UP ⑨ or DN ⑥ button. The tuner will automatically seek the six strongest stations in the selected band and memorize them in order of their signal strength. These stations are automatically placed in the preset memory with the strongest station in Preset No. 1 and the 6th strongest station in Preset No. 6. When seeking stations, the tuner first seeks in the local tuning mode. If less than 6 stations are memorized, the tuner seeks again in the distance (DX) mode.
4. After finishing the Auto Memory Preset, the tuner goes to the station placed in Preset Memory No. 1. If no stations are memorized, it returns to the original station you were listening to before the Auto Memory Preset procedure began.

OPERATION

Preset Tuning

After the preset stations have been memorized, you can tune in your desired s
(within the band displayed) with one touch of a button.

1. Select the tuning band (FM1, FM2, MW or LW) with the BAND button ⑫.
2. Press any one of the Preset buttons ⑰ and the number of that preset will illu
   the matrix display.
3. The frequency of the station placed in the selected preset location will appea
   display.

D.A.P. (Direct Access Preset)

This feature allows the storage of FM, MW and LW presets on the same band
the D.A.P. button ⑫ for more than two seconds to light up the D.A.P. indicator ⑳
program stations into the D.A.P. band, follow steps 1 – 3 as described in the Ma
Memory Preset section.

Accessing the D.A.P. Presets

1. Press the D.A.P. button ⑫ for more than two seconds. The D.A.P. indicator
   illuminate in the display.
2. Press one of the preset buttons ⑰.
3. The frequency of the station placed in the selected D.A.P. location will appea
   display.

Preset Scan

In the radio mode, this feature locates the six radio stations preset in memory
band (MW/LW, FM1, FM2 or D.A.P.) and plays 10 seconds for each station in nu
order from the Preset No. 1 to No. 6 until the preset scan mode is deactivated.
presets it will scan FM1, then FM2 and continue to cycle between these two bar

When a preset station (No. 1 through No. 6) is being received, pressing the P.
button ⑪ for more than two seconds activates the preset scan mode. Scanning
with the next preset station. The preset scanning continues in order until this mo
deactivated by pressing the P. SCAN button ⑪ or one of the Preset buttons ⑰ fo
second time.

When a station not stored in the preset scan memory is being received, pressi
SCAN button ⑪ activates the preset scan mode and scans starting with "No. 1"
same band you were receiving.

NOTE:

When the frequency of the preset memory station is weak, the preset scannin
to the next preset memory station at once.

OPERATION

onaural Switching

ect the Stereo/Monaural-Auto switching or Monaural mode for FM receiving
e MONO switch ㊲. In the auto switching mode, you can receive stereo
Stereo, and monaural broadcasting in MONO. The STereo ㉛ or MOno ㉚
s your reception mode. In the monaural only mode, you will always receive
in monaural even if the broadcast is stereo. The Monaural only mode quiets
o signal of weaker broadcasts. The STereo indicator ㉛ will not appear while
nly mode is selected.

ory Preset

nstructions below to enter stations into preset memory:
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ur desired station using Manual or Auto Seek tuning.
Preset button number 1 ⑤ for more than two seconds. The matrix display ㉑
to blink. The tuning band (FM1, FM2) can be changed by pressing the BAND
f you wish to change bands. Press that preset button again while the display
(within 5 seconds).
ncy you selected will be placed into Preset Memory number 1 and will
he display.

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tation will be memorized.
ps 2 — 3 for the remaining presets (2 — 6). This procedure should be
r FM1, FM2, MW and LW.

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, while in this mode you cannot switch back and forth from MW/LW to FM.

Preset

TUNE button ⑪ to light up the A. MEMO indicator ㉖.
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the selected band and memorize them in order of their signal strength.
ions are automatically placed in the preset memory with the strongest
reset No. 1 and the 6th strongest station in Preset No. 6. When seeking
e tuner first seeks in the local tuning mode. If less than 6 stations are
, the tuner seeks again in the distance (DX) mode.
ing the Auto Memory Preset, the tuner goes to the station placed in Preset
o. 1. If no stations are memorized, it returns to the original station you were
before the Auto Memory Preset procedure began.

OPERATION

Preset Tuning

After the preset stations have been memorized, you can tune in your desired station (within the band displayed) with one touch of a button.

1. Select the tuning band (FM1, FM2, MW or LW) with the BAND button ⑫.
2. Press any one of the Preset buttons ⑰ and the number of that preset will illuminate in the matrix display.
3. The frequency of the station placed in the selected preset location will appear in the display.

D.A.P. (Direct Access Preset)

This feature allows the storage of FM, MW and LW presets on the same band. Press the D.A.P. button ⑫ for more than two seconds to light up the D.A.P. indicator ⑳. To program stations into the D.A.P. band, follow steps 1 — 3 as described in the Manual Memory Preset section.

Accessing the D.A.P. Presets

1. Press the D.A.P. button ⑫ for more than two seconds. The D.A.P. indicator ⑳ will illuminate in the display.
2. Press one of the preset buttons ⑰.
3. The frequency of the station placed in the selected D.A.P. location will appear in the display.

Preset Scan

In the radio mode, this feature locates the six radio stations preset in memory on each band (MW/LW, FM1, FM2 or D.A.P.) and plays 10 seconds for each station in numerical order from the Preset No. 1 to No. 6 until the preset scan mode is deactivated. For FM presets it will scan FM1, then FM2 and continue to cycle between these two bands.

When a preset station (No. 1 through No. 6) is being received, pressing the P. SCAN button ⑪ for more than two seconds activates the preset scan mode. Scanning begins with the next preset station. The preset scanning continues in order until this mode is deactivated by pressing the P. SCAN button ⑪ or one of the Preset buttons ⑰ for a second time.

When a station not stored in the preset scan memory is being received, pressing the P. SCAN button ⑪ activates the preset scan mode and scans starting with "No. 1" on the same band you were receiving.

NOTE:

When the frequency of the preset memory station is weak, the preset scanning moves to the next preset memory station at once.

OPERATION

(7516M/7516MM model only)

Traffic Information Receiving

This model is equipped with traffic information receiving apparatus to be used in West Germany where the traffic information is broadcast in FM. The following is how to use this unit to receive traffic information broadcasting.

1. Select FM position.
2. Depress the SDK switch ㊱ and tune to a station. If the station is a traffic information station, the SK indicator ㊷ will glow and show the reception of a broadcast from a traffic information station.
   NOTE: SK Indicator
   When SK signal is received irrespective of the SDK switch position, the SK indicator will illuminate.
3. In the SDK mode, stations other than traffic information stations are muted and cut out. Therefore, it is easy to select a traffic information station.
4. As the signal of the tuned traffic information station becomes weak, the SK indicator will extinguish. Then after the lapse of 25 seconds, a rhythmical alarm will sound to urge retuning to another stronger station. If the reception of further traffic information is required, tune in the desired traffic information station. When received, the alarm will stop and the SK indicator illuminates. Since the alarm will continue if no signals from any other traffic stations can be received, release the SDK switch for reception of normal broadcasting.
5. When the unit is playing a tape or a CD with the SDK switch pushed in and tuned to a traffic information station, the tape or CD play is interrupted and changed to FM radio if the pre-tuned station begins a traffic information message. When the message is over, the unit reverts to tape or CD play automatically.
6. Even if the Volume control ㊴ is set to the minimum position, the volume of the traffic information will be automatically adjusted to the level preset by the special volume control on the left side of the unit. After the message, the sound volume returns to the previously adjusted level.
7. If traffic information reception is no longer necessary, release the SDK switch for normal radio reception.

NOTE:

When the SDK switch is pressed and there is no SK signal, ALARM will sound after the lapse of 25 seconds. Press the SDK switch again to stop it.

NOTE:

This unit has a special volume control on the left side of the unit for adjusting the volume level for SDK reception and the alarm which will sound when there is no SK signal in the SDK mode. Set the Volume control ㊴ to the minimum level position, and adjust the special volume control on the left side of the unit to your desired level with a screwdriver.

● TAPE PLAYER OPERATION

Turn the unit on and press the TAPE (▶/II) button ⑬ to access the tape mode.

Dolby* B Noise Reduction

Before playing a cassette tape, check to see if it is encoded with Dolby B noise reduction.

Press the Dolby B NR button ⑤ when playing a Dolby NR encoded tape. The Dolby B NR indicator ㉓ will illuminate.

Cassette Loading and Reloading

1. Insert a prerecorded cassette tape into the Cassette Loading Slot ③ with the open side facing to your right.
2. If the cassette tape is not completely loaded into the deck, lightly press the cassette into the slot.

Eject

Press the Eject button ④ to eject the cassette tape from the tape mechanism.

Pause

To temporarily stop playback, press the TAPE (▶/II) button ⑬. To resume playback, press the same button again.

Playback

1. Insert a prerecorded cassette tape with the open side facing right. The playback begins immediately.
2. If a cassette tape is already loaded in the unit, press the TAPE (▶/II) button ⑬ to start playback.
3. To stop tape play, press the Eject button ④ or turn the power off with the Power switch ㊴.

True Fast Forward and Rewind

1. Press the FF button ⑨ to advance the tape quickly. Press the REW button ⑥ to rapidly run the tape backward. The deck will perform these functions correctly regardless of the tape play direction.
2. To disengage the FF or REW function, press the TAPE (▶/II) button ⑬.

Music Sensor

1. Press the Music Sensor (M.S.) button ⑦ and its indicator ㉞ will light up.
2. Push the FF button ⑨ to advance to the beginning of the next musical track. Press the REW button ⑥ to go back to the beginning of the current musical track.
3. The tape deck searches forward (or back) until it senses a blank section on the tape and begins playback at that point.

NOTE:

The Music Sensor cannot detect blank sections of less than three seconds.

Radio Monitor

Press the R. MONI switch ㊲ for more than two seconds and the R. MONI indicator ⑱ lights up. If the R. MONI switch ㊲ is activated during Fast Forward or Rewind, the unit will go into the tuner mode. When the Fast Forward or Rewind operation is completed, the unit will return to the tape mode and begin playback.

NOTE:

Radio Monitor will not function in the Music Sensor (M.S.) mode.

Auto Reverse

When the tape is played or fast-forwarded to the end, the tape transport automatically reverses the tape direction and playback begins.

Manual Reverse

To manually change playback direction (switch between side A and side B), press the PROG button ㊴.

Blank Skip

This function senses a non recorded portion continuing for more than 15 seconds on the tape and fast forwards the tape to a beginning of next program or to the tape end. Press the B. SKIP button ⑧ to activate the Blank Skip function. Press again the B. SKIP button ⑧ to deactivate the Blank Skip function.

Repeat

The repeat feature allows you to continuously play back a single selection.

1. Press the REPEAT button ⑮.
2. The music currently playing will be played back repeatedly.
3. To stop repeat playback, press the REPEAT button ⑮ again.

Scan

This function allows playback of the first 10 seconds of each selection on the tape in succession. This function is useful in searching for a specific program ahead on a tape. A second push of the SCAN button ⑭ or pressing the TAPE button ⑬ deactivates the function.

Head Cleaning

When playback sound quality begins to deteriorate, it is time to clean the tape head. Insert a special head cleaning cassette into the tape deck and allow it to run for approximately 1 minute to remove any foreign matter. There are special cleaning cassettes that also clean the capstans and pinch rollers. Please contact your authorized Alpine dealer for information about these cleaning devices.

● CD OPERATION

The following instructions apply only to systems that incorporate the Alp
with the 7516M/7516MM/7516L.

Turn the unit on and access the CD mode by pressing the DISC (▶/II)

Initial System Turn-On

When operating the system for the first time after installation or after th
battery has been disconnected and reconnected, press the Reset switch
pencil or other pointed object.

Normal Play

1. Press the DISC (▶/II) button ⑩.
2. The Digital Display ㉒ will show "T-00" for a second, then "T-01" will b
the first track on the first disc will begin playback.
3. After the last track on the last disc is played back, the pickup will retur
beginning of the first track of the first disc and begin playback from th

Pause

While the disc is playing, press the DISC (▶/II) button ⑩ to temporaril
The Digital Display ㉒ will show "PAU". To resume playback, press the D
(▶/II) ⑩ again.

Music Sensor (Skip)

This feature allows you to access the beginning of your musical track se
and quickly. It is functional in the play or pause mode. The Digital Display
track number you have selected.

- To advance to the next track on the disc, press the ▶▶| side of the M.
⑨.

1. Playback stops, and the pickup moves up to the beginning of the next
track number appears in the Digital Display ㉒.
2. Playback begins immediately.
3. If you wish to access a track further ahead on the disc, continue press
side of the M.S. · CD button ⑨ until you reach the track of your choice

- To replay the track that is currently playing, press the |◀◀ side of the
button ⑥.

1. Playback stops, and the pickup moves back to the beginning of the cu
The track number in the Digital Display ㉒ remains the same.
2. Playback begins immediately from the beginning of the track.
3. If you access a track further towards the beginning of the disc, contin
the |◀◀ side of the M.S. · CD button ⑥ until you reach the track of yo

Direct Disc Access

1. Press the DISC SELect switch ㊴ to select from discs 1 – 6. The disc numbers will appear in the display.
2. Press the M.S. UP ⑨ or DN ⑥ button for musical track selection.

OPERATION

tor
R. MONI switch ㊲ for more than two seconds and the R. MONI indicator ⑱
he R. MONI switch ㊲ is activated during Fast Forward or Rewind, the unit
e tuner mode. When the Fast Forward or Rewind operation is completed,
return to the tape mode and begin playback.

itor will not function in the Music Sensor (M.S.) mode.

se
tape is played or fast-forwarded to the end, the tape transport automatically
tape direction and playback begins.

erse
lly change playback direction (switch between side A and side B), press the
㊴.

on senses a non recorded portion continuing for more than 15 seconds on the
t forwards the tape to a beginning of next program or to the tape end. Press
utton ⑧ to activate the Blank Skip function. Press again the B. SKIP button ⑧
the Blank Skip function.

t feature allows you to continuously play back a single selection.
REPEAT button ⑮.
ic currently playing will be played back repeatedly.
epeat playback, press the REPEAT button ⑮ again.

ion allows playback of the first 10 seconds of each selection on the tape in
This function is useful in searching for a specific program ahead on a tape. A
of the SCAN button ⑭ or pressing the TAPE button ⑬ deactivates the

ing
back sound quality begins to deteriorate, it is time to clean the tape head.
ial head cleaning cassette into the tape deck and allow it to run for
ly 1 minute to remove any foreign matter. There are special cleaning
at also clean the capstans and pinch rollers. Please contact your authorized
for information about these cleaning devices.

OPERATION

● CD OPERATION

The following instructions apply only to systems that incorporate the Alpine CD Shuttle with the 7516M/7516MM/7516L.

Turn the unit on and access the CD mode by pressing the DISC (▶/❚❚) button ⑩.

Initial System Turn-On

When operating the system for the first time after installation or after the vehicle's battery has been disconnected and reconnected, press the Reset switch ㊳ with a sharp pencil or other pointed object.

Normal Play

1. Press the DISC (▶/❚❚) button ⑩.
2. The Digital Display ㉒ will show "T-00" for a second, then "T-01" will be displayed and the first track on the first disc will begin playback.
3. After the last track on the last disc is played back, the pickup will return to the beginning of the first track of the first disc and begin playback from that point.

Pause

While the disc is playing, press the DISC (▶/❚❚) button ⑩ to temporarily stop playback. The Digital Display ㉒ will show "PAU". To resume playback, press the DISC button (▶/❚❚) ⑩ again.

Music Sensor (Skip)

This feature allows you to access the beginning of your musical track selection simply and quickly. It is functional in the play or pause mode. The Digital Display ㉒ shows the track number you have selected.

- To advance to the next track on the disc, press the ▶▶❘ side of the M.S. · CD button ⑨.

1. Playback stops, and the pickup moves up to the beginning of the next track. That track number appears in the Digital Display ㉒.
2. Playback begins immediately.
3. If you wish to access a track further ahead on the disc, continue pressing the ▶▶❘ side of the M.S. · CD button ⑨ until you reach the track of your choice.

- To replay the track that is currently playing, press the ❘◀◀ side of the M.S. · CD button ⑥.

1. Playback stops, and the pickup moves back to the beginning of the current track. The track number in the Digital Display ㉒ remains the same.
2. Playback begins immediately from the beginning of the track.
3. If you access a track further towards the beginning of the disc, continue pressing the ❘◀◀ side of the M.S. · CD button ⑥ until you reach the track of your choice.

Direct Disc Access

1. Press the DISC SELect switch ㊴ to select from discs 1 — 6. The disc and track numbers will appear in the display.
2. Press the M.S. UP ⑨ or DN ⑥ button for musical track selection.

OPERATION

Fast Forward/Fast Backward

The Fast Forward/Fast Backward feature works in both play and pause modes.

1. To rapidly move the pickup forward, press the M.S. UP (▶▶❘) button ⑨ and hold it down for more than one second.
2. To rapidly move the pickup backward, press the M.S. DN (❘◀◀) button ⑥ and hold it down for more than one second.
3. Continue holding the UP (▶▶❘) ⑨ or DN (❘◀◀) ⑥ button until you reach the point where you want to resume playback, then release the switch.
4. When the pickup reaches the end of the disc, the unit will go into the Pause mode.

REPEAT (One/All)

This feature allows you to continuously repeat a single track or one entire disc.

To Repeat a Single Track

1. Locate the music track of your choice using the M.S. UP ⑨ or DN ⑥ button.
2. Press the REPEAT button ⑮.
   The RPT indicator ㉙ will illuminate.
   The music track will be played back repeatedly.
3. To stop repeat play, press the REPEAT button twice. The indicator switches from RPT to RPT ALL and the illumination will be off.

To Repeat an Entire Disc

1. While playing a disc, press the REPEAT button ⑮ until RPT and ALL indicators are illuminated.
2. The disc will be played back repeatedly.
3. To stop repeat play, press the REPEAT button ⑮ once. The indicator illumination will be off.

Disc Scan

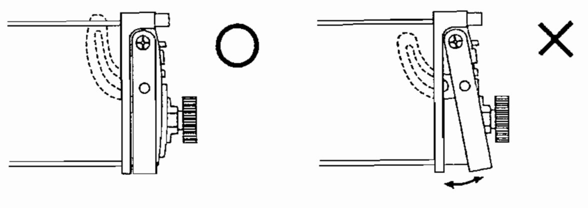
Press the SCAN button ⑭ and the unit will playback the first 10 seconds of each track in succession. This function is useful in searching ahead on a disc for a specific selection. Pressing the SCAN button ⑭ a second time deactivates the function.

M.I.X. (Random Play)

Press the M.I.X. button ⑯ while the unit is in the play or pause mode. Musical tracks on the selected disc will be played back in a random sequence generated by the microprocessor. After all the tracks on the disc have been played back once, the player will begin a new random sequence.

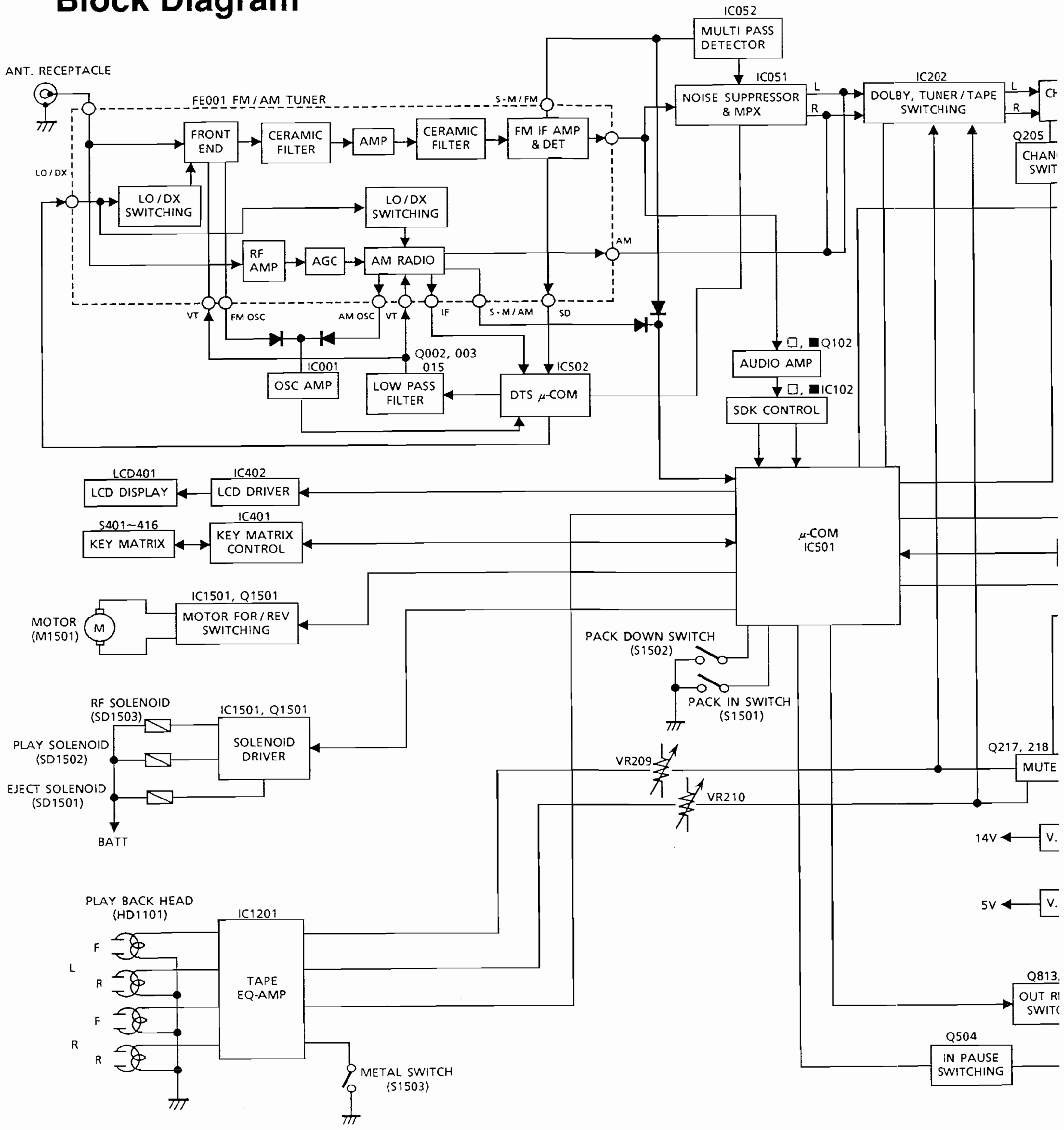
PRECAUTIONS

- When replacing the fuse(s), the replacement must be of the same amperage as shown on the fuse holder. If the fuse(s) blows more than once, carefully check all electrical connections for shorted circuitry. Also have your vehicle's voltage regulator checked. Do not attempt to repair the unit yourself. Return it to your Alpine dealer or the nearest Alpine Service Station for servicing.
- In order to ensure proper performance, be sure the temperature in your vehicle is between the range of 14° F (−10°C) to 140°F (60°C) before turning your player on. Good air circulation is essential to prevent heat build-up in the unit (especially in hot weather).
- C-120 type cassette tapes are not recommended for use in automobile tape players.
- Prevent any foreign objects from entering the cassette opening as the precision mechanism and tape head may be damaged.
- To protect your cassette tapes, store them in a cool place away from dust, dirt, and strong magnetic sources such as electric motors, speakers and TV sets.
- Check and make sure any slack in the tape is taken up before inserting the tape into the unit. A loose tape could cause damage to the unit and the tape itself. Tighten the cassette by inserting a pencil or a similar instrument into the spindle hole and turn until all the slack has been taken up.
- Use of this equipment at high volumes could damage your hearing.
- **CAUTION:**
  In the event of road vibration or rapid acceleration or vehicle collision, this unit may become dislodged from its case unless the handle is fully down. This could result in personal injury to occupants of the vehicle or physical damage to the unit. Please see the illustrations below for further information on how to properly secure the handle.

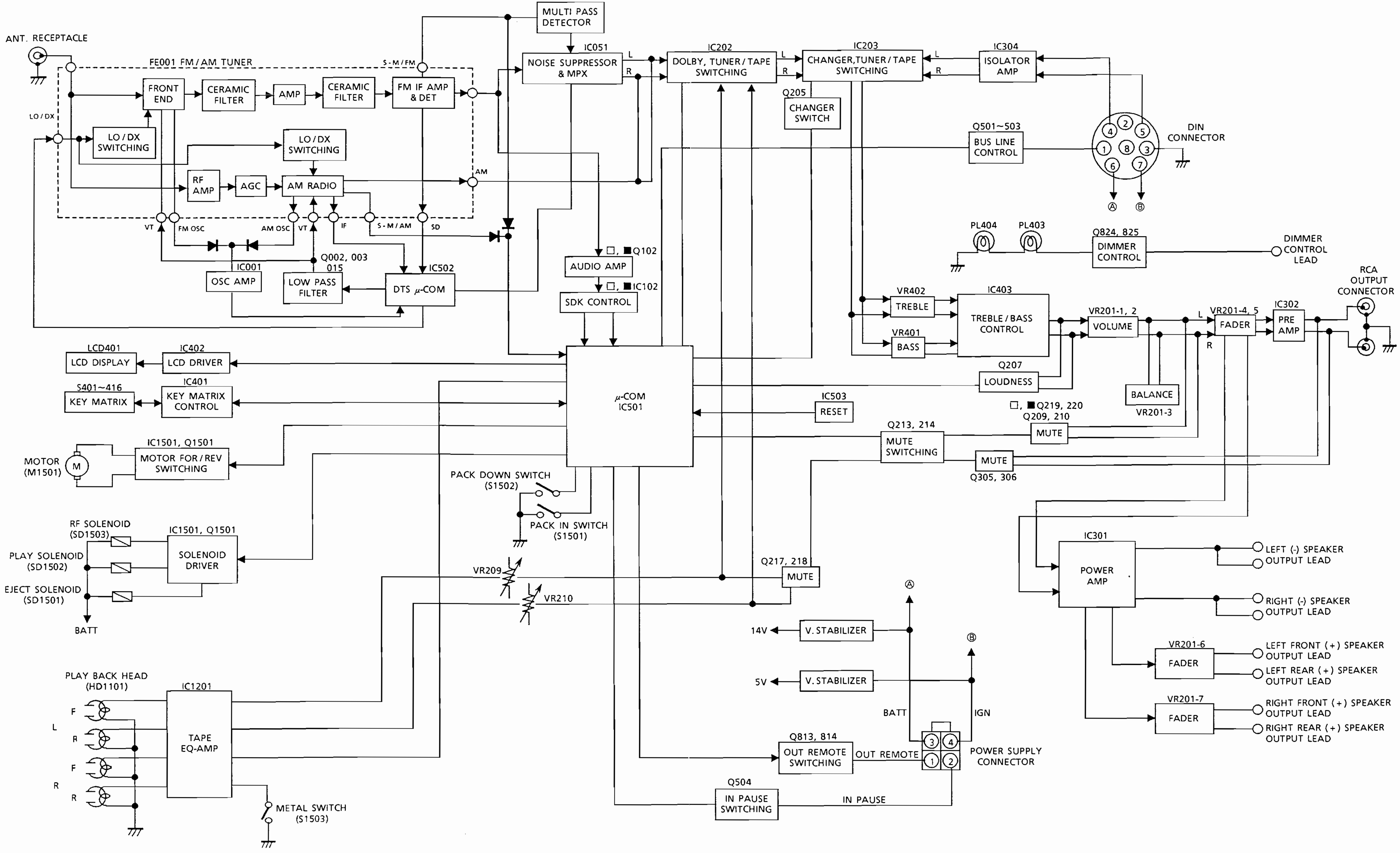


- **CAUTION:**
  The heat sink on the rear of the unit will become hot after operation. Exercise caution when the unit is removed from the Q.R. Bracket.

Block Diagram


IC052
MULTI PASS DETECTOR
ANT. RECEPTACLE
IC051
NOISE SUPPRESSOR & MPX
L
R
IC202
DOLBY, TUNER/TAPE SWITCHING
L
R
CH
Q205
CHAN
SWIT
FE001 FM/AM TUNER
S-M/FM
FRONT END
CERAMIC FILTER
AMP
CERAMIC FILTER
FM IF AMP & DET
LO/DX
LO/DX SWITCHING
LO/DX SWITCHING
RF AMP
AGC
AM RADIO
AM
VT
FM OSC
AM OSC
VT
IF
S-M/AM
SD
Q002, 003
015
IC001
OSC AMP
LOW PASS FILTER
IC502
DTS μ-COM
□, ■Q102
AUDIO AMP
□, ■IC102
SDK CONTROL
LCD401
LCD DISPLAY
IC402
LCD DRIVER
S401~416
KEY MATRIX
IC401
KEY MATRIX CONTROL
μ-COM
IC501
MOTOR
(M1501)
M
IC1501, Q1501
MOTOR FOR/REV SWITCHING
PACK DOWN SWITCH
(S1502)
PACK IN SWITCH
(S1501)
RF SOLENOID
(SD1503)
PLAY SOLENOID
(SD1502)
EJECT SOLENOID
(SD1501)
IC1501, Q1501
SOLENOID DRIVER
BATT
VR209
VR210
Q217, 218
MUTE
14V
V.
5V
V.
PLAY BACK HEAD
(HD1101)
IC1201
TAPE EQ-AMP
L
F
R
R
F
R
METAL SWITCH
(S1503)
Q813,
OUT R
SWIT
Q504
IN PAUSE SWITCHING

Block Diagram


ANT. RECEPTACLE
FE001 FM/AM TUNER
S-M/FM
FRONT END
CERAMIC FILTER
AMP
CERAMIC FILTER
FM IF AMP & DET
LO/DX
LO/DX SWITCHING
LO/DX SWITCHING
RF AMP
AGC
AM RADIO
AM
VT
FM OSC
AM OSC
VT
IF
S-M/AM
SD
IC001
OSC AMP
Q002, 003 015
LOW PASS FILTER
IC502
DTS μ-COM
IC052
MULTI PASS DETECTOR
IC051
NOISE SUPPRESSOR & MPX
L
R
IC202
DOLBY, TUNER/TAPE SWITCHING
L
R
IC203
CHANGER,TUNER/TAPE SWITCHING
L
R
IC304
ISOLATOR AMP
Q205
CHANGER SWITCH
Q501~503
BUS LINE CONTROL
DIN CONNECTOR
1 2 3 4 5 6 7 8
Ⓐ Ⓑ
PL404
PL403
Q824, 825
DIMMER CONTROL
DIMMER CONTROL LEAD
□, ■Q102
AUDIO AMP
□, ■IC102
SDK CONTROL
VR402
TREBLE
VR401
BASS
IC403
TREBLE/BASS CONTROL
VR201-1, 2
VOLUME
L
VR201-4, 5
FADER
R
IC302
PRE AMP
RCA OUTPUT CONNECTOR
Q207
LOUDNESS
BALANCE
VR201-3
LCD401
LCD DISPLAY
IC402
LCD DRIVER
S401~416
KEY MATRIX
IC401
KEY MATRIX CONTROL
μ-COM IC501
IC503
RESET
□, ■Q219, 220
Q209, 210
MUTE
Q213, 214
MUTE SWITCHING
MUTE
Q305, 306
MOTOR (M1501)
M
IC1501, Q1501
MOTOR FOR/REV SWITCHING
PACK DOWN SWITCH (S1502)
PACK IN SWITCH (S1501)
RF SOLENOID (SD1503)
PLAY SOLENOID (SD1502)
EJECT SOLENOID (SD1501)
BATT
IC1501, Q1501
SOLENOID DRIVER
VR209
VR210
Q217, 218
MUTE
IC301
POWER AMP
LEFT (-) SPEAKER OUTPUT LEAD
RIGHT (-) SPEAKER OUTPUT LEAD
VR201-6
FADER
LEFT FRONT (+) SPEAKER OUTPUT LEAD
LEFT REAR (+) SPEAKER OUTPUT LEAD
VR201-7
FADER
RIGHT FRONT (+) SPEAKER OUTPUT LEAD
RIGHT REAR (+) SPEAKER OUTPUT LEAD
Ⓐ
14V
V. STABILIZER
Ⓑ
5V
V. STABILIZER
BATT
IGN
Q813, 814
OUT REMOTE SWITCHING
OUT REMOTE
3 4 1 2
POWER SUPPLY CONNECTOR
Q504
IN PAUSE SWITCHING
IN PAUSE
PLAY BACK HEAD (HD1101)
L
F
R
R
F
R
IC1201
TAPE EQ-AMP
METAL SWITCH (S1503)

Notes : □ : For 7516M model only ■ : For 7516MM model only
▲ : For 7516L model only Others : Common

Disassembly Instructions

1. Removal of Nosepiece

(1) After removal of Top Cover, remove two Control Knobs (Volume, Fader) and two Slide Knobs (Treble, Bass) in Figure 1.

(2) Remove four Hooks as shown in Figures 1 and 2.

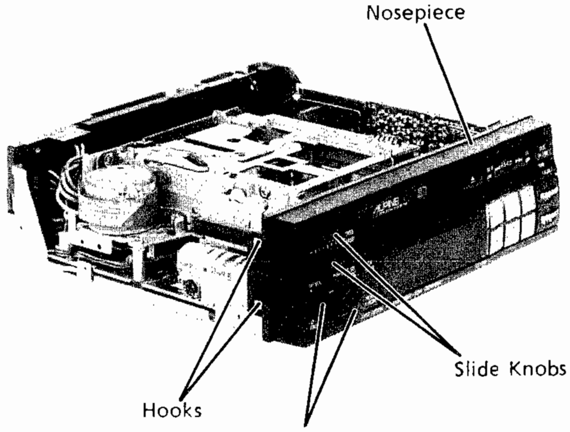

Nosepiece
Slide Knobs
Hooks
Control Knobs

Figure 1

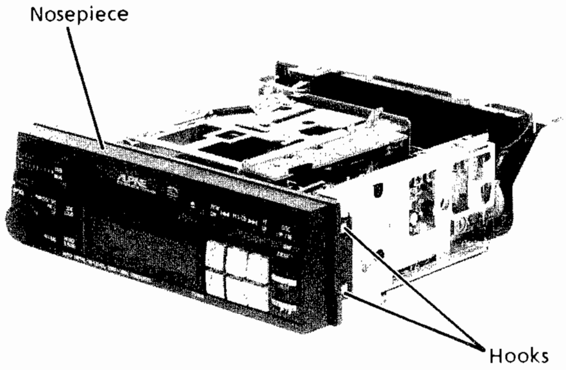

Nosepiece
Hooks

Figure 2

2. Removal of Cassette Deck

(1) After removal of Nosepiece, remove four screws marked "○" as shown in Figure 3.

(2) Disconnect a Connector from the Cassette Deck.

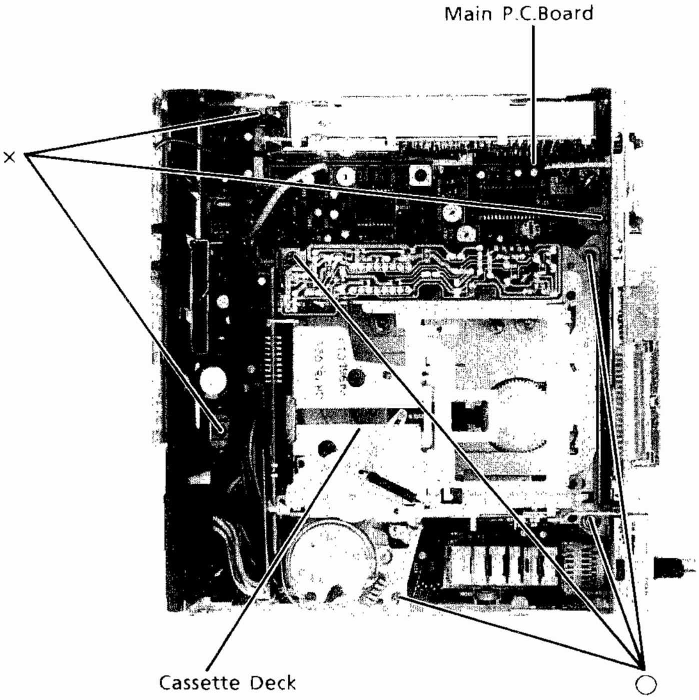

Main P.C.Board
×
Cassette Deck
○

Figure 3

3. Removal of Front P.C.Board

(1) After removal of Cassette Deck, remove two screws marked "△" as shown in Figure 4.

(2) Disconnect the 20-pins connector from the Front P.C.Board..

※ To make it easy, insert a thin stick object into an aperture and push out the Front P.C.Board as shown in Figure 5.
Then the Front P.C.Board will be removed with Main P.C.Board.

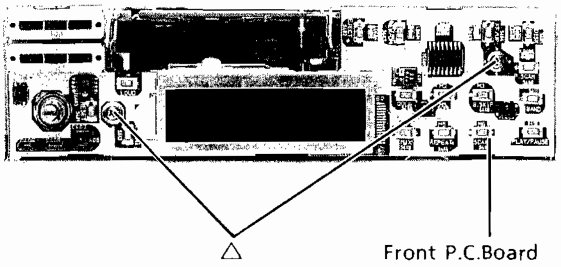

△
Front P.C.Board

Figure 4

4. Removal of Main P.C.Board

(1) After removal of Front P.C.Board, remove seven screws marked " × " as shown in Figures 3 and 6.

(2) Disconnect all connectors from the Main P.C.Board.

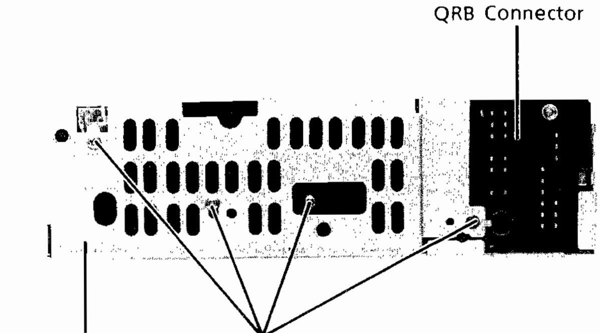

QRB Connector
Bottom Chassis
×

Figure 6

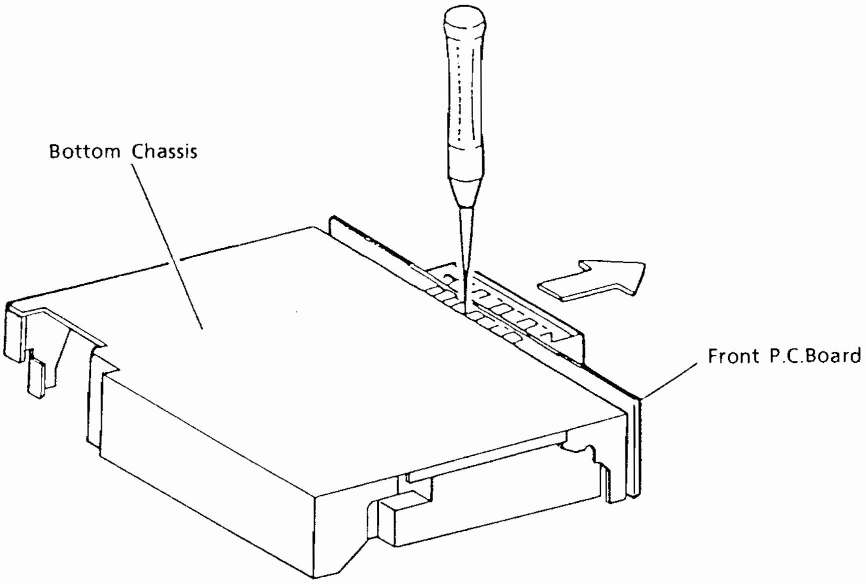

Bottom Chassis
Front P.C.Board

Figure 5

Adjustment Procedures

1 FM SECTION

(1) Dummy Antenna Circuit

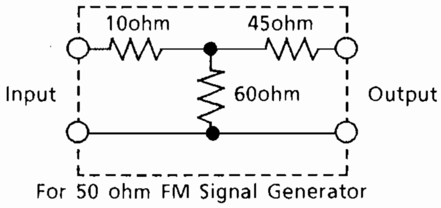

10ohm
45ohm
Input
60ohm
Output
For 50 ohm FM Signal Generator

Figure 7

(2) Connections

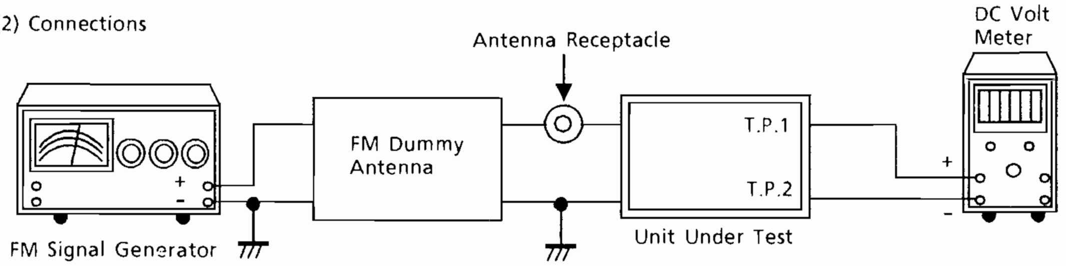

Antenna Receptacle
DC Volt Meter
FM Dummy Antenna
T.P.1
T.P.2
+
-
+
-
FM Signal Generator
Unit Under Test

Figure 8

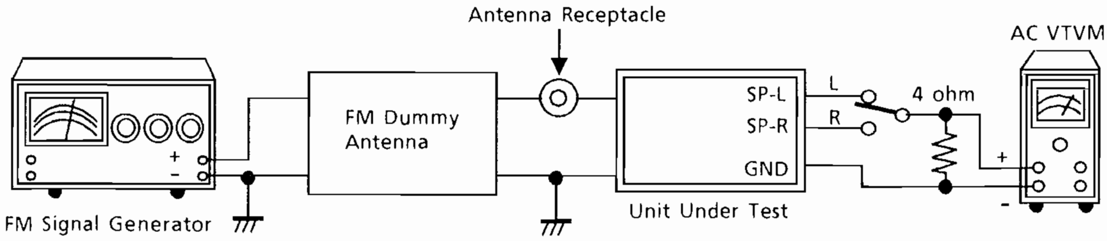

Antenna Receptacle
AC VTVM
FM Dummy Antenna
SP-L
SP-R
GND
L
R
4 ohm
+
-
+
-
FM Signal Generator
Unit Under Test

Figure 9

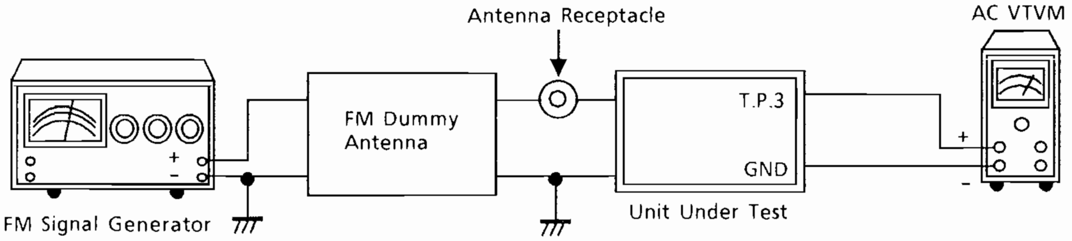

Antenna Receptacle
AC VTVM
FM Dummy Antenna
T.P.3
GND
+
-
+
-
FM Signal Generator
Unit Under Test

Figure 10

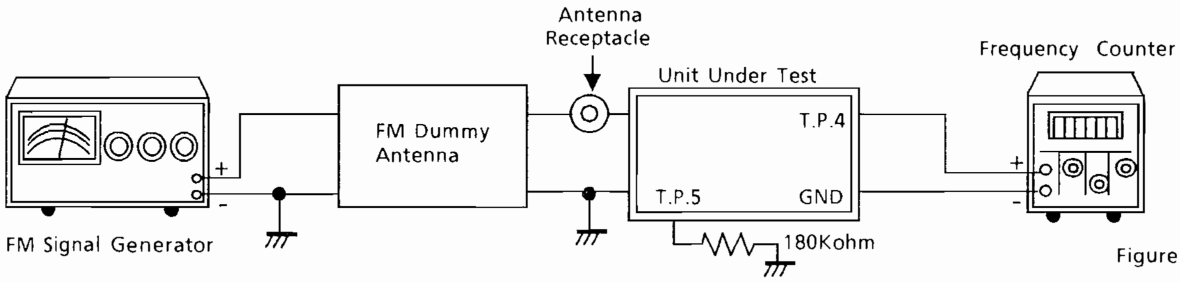

Antenna Receptacle
Unit Under Test
Frequency Counter
FM Dummy Antenna
T.P.4
T.P.5
GND
180Kohm
+
-
+
-
FM Signal Generator

Figure 11

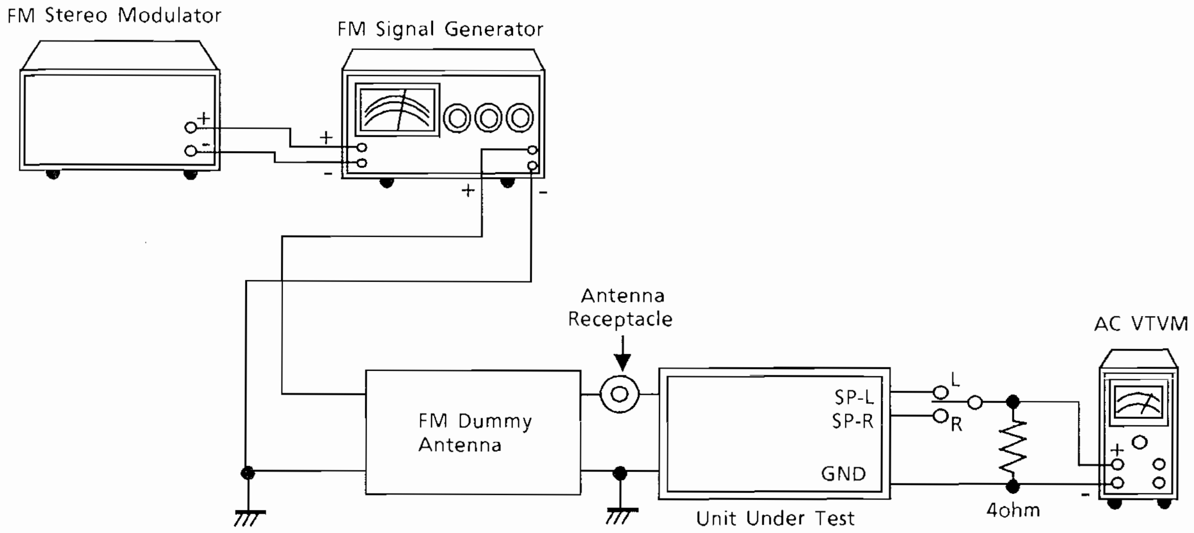


Figure 12

(3) Control Settings

Power Switch	ON
Fader Control	Front
Balance Control	Mechanical Center
Treble / Bass Control	Mechanical Center
Band Switch	FM
Others	OFF

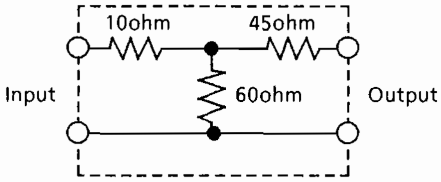
(4) Adjustment Procedures

Step	Description		Connection	Signal Generator	Dial Control	Test Point	Adjustment
1	IF Adjustment		Figure 8	98.1MHz, 66dB (Mod. OFF)	98.1MHz	T.P.1 T.P.2	T2101 for 0±30mV.
2	Noise Level Adjustment	(1)	Figure 9	98.1MHz, 66dB (Mod. 400Hz, Dev. 22.5kHz)	98.1MHz	Speaker Output	Adjust VR201 (VOLUME) to obtain 2V output This value is 0dB.
		(2)	Figure 9	98.1MHz, -13dB (Mod. 400Hz, Dev. 22.5kHz)	98.1MHz	Speaker Output	Adjust VR2102 to 35±5dB output at SG level minimum.
3	Seek Stop Adjustment		Figure 10	98.1MHz, 21dB (Mod. 400Hz, Dev. 22.5kHz)	98.1MHz	T.P.3	Adjust VR2101 to obtain 27±5dB at T.P.3 output.
4	VCO Adjustment		Figure 11	98.1MHz 66dB (Mod. 400Hz, Dev. 22.5kHz)	98.1MHz	T.P.4	Adjust VR052 to read 19±0.05KHz on Counter at T.P.4.
5	Stereo Separation Adjustment (Lch)		Figure 12	98.1MHz 66dB (Stereo Mod, Lch, only)	98.1MHz	Speaker Output	Adjust VR053 for Rch. Output to be minimum and confirm Lch, and Rch. Output level difference is more than 25dB.

Step	Description	Connection	Signal Generator	Dial Control	Test Point	Adjustment
6	Stereo Blend Adjustment (Lch)	Figure 12	98.1MHz 40dB (Stereo Mod, Lch, only)	98.1MHz	Speaker Output	Adjust VR051 for Lch and Rch output level difference to be 8±3dB.
7	Stereo Separation Adjustment (Rch)	Figure 12	98.1MHz 66dB (Stereo Mod, Rch, only)	98.1MHz	Speaker Output	Proceed same adjustment under step 5 by alternating Lch and Rch.
8	Stereo Blend Adjustment (Rch)	Figure 12	98.1MHz 40dB (Stereo Mod, Rch, only)	98.1MHz	Speaker Output	Proceed same adjustment under step 6.

2 SDK SECTION (□, ■)

(1) Dummy Antenna Circuit


10ohm
45ohm
Input
60ohm
Output

For 50 ohm FM Signal Generator

Figure 13

(2) Connections

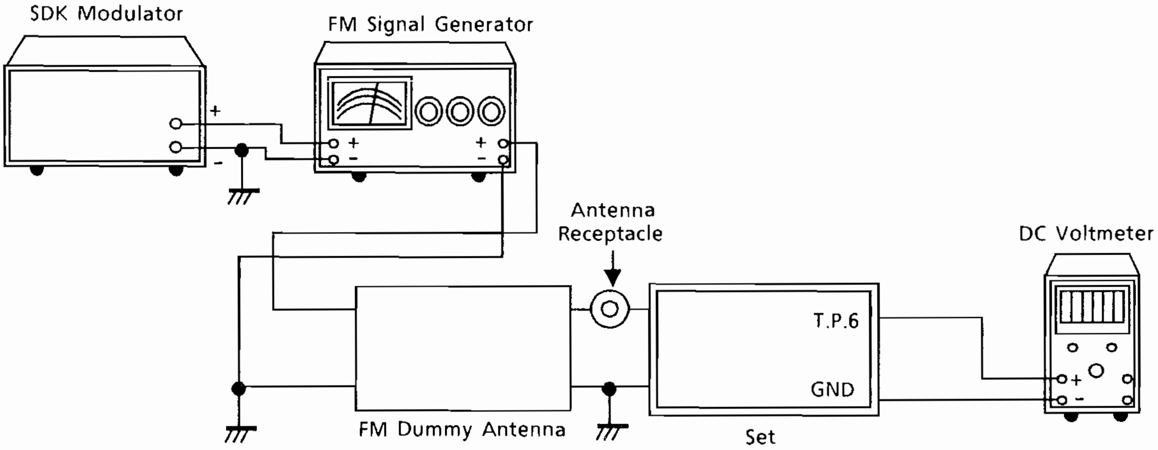

SDK Modulator
+
-
FM Signal Generator
+
-
+
-
Antenna Receptacle
DC Voltmeter
T.P.6
GND
+
-
FM Dummy Antenna
Set

Figure 14

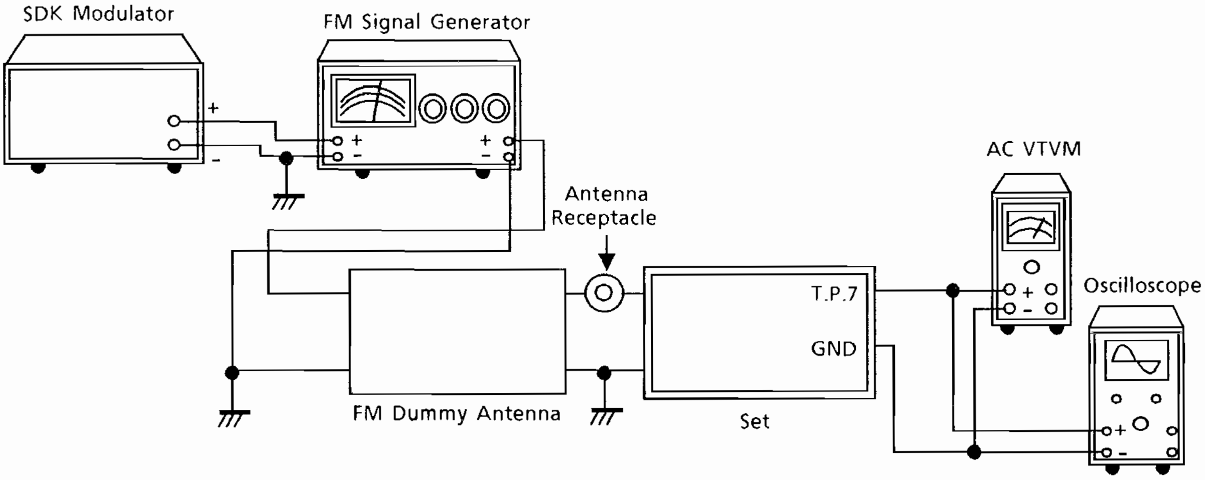

SDK Modulator
FM Signal Generator
+
-
Antenna
Receptacle
AC VTVM
T.P.7
GND
Oscilloscope
FM Dummy Antenna
Set

Figure 15

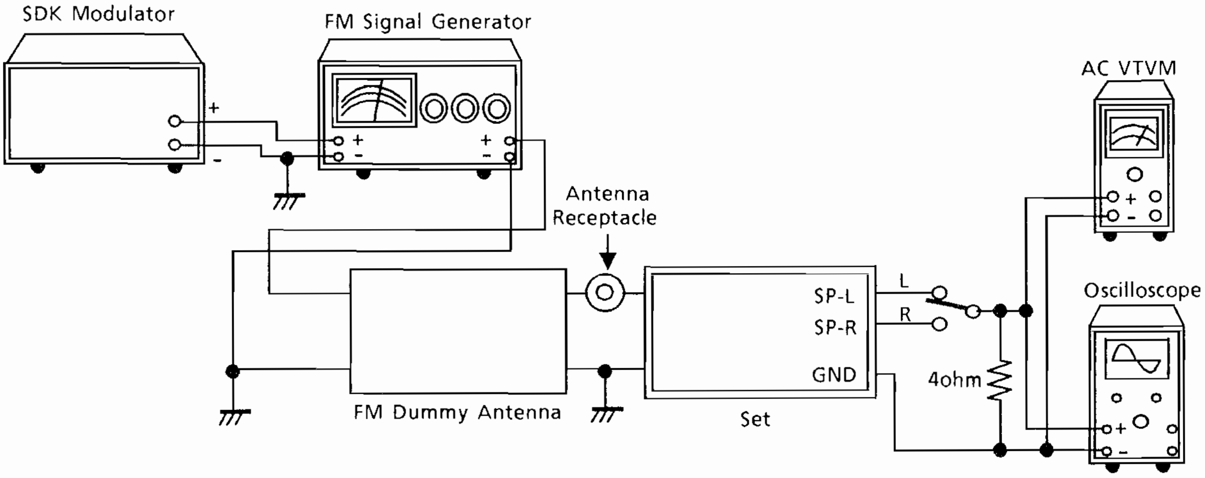

SDK Modulator
FM Signal Generator
+
-
Antenna
Receptacle
AC VTVM
SP-L
SP-R
GND
L
R
4ohm
Oscilloscope
FM Dummy Antenna
Set

Figure 16

(2) Control Settings

Power Switch .... ON
Band Select Switch .... SDK
Balance Control .... Mechanical Center
Treble / Bass Control .... Mechanical Center
Fader Control .... Front
Others .... OFF

(3) Adjustment Procedures

Step	Description	Connection	Signal Generator	Dial Control	Test Point	Adjustment
1	SK Adjustment	Figure 14	98.1MHz, 15dB (SK, BK : ON DK : OFF) (Mod, 1kHz Dev. 75kHz)	98.1MHz	T.P.6	L101 for Maximum Output.
2	DK Adjustment	Figure 15	98.1MHz, 15dB (SK, BK, DK : ON) (Mod, 1kHz Dev. 75kHz)	98.1MHz	T.P.7	VR101 for Maximum Output.
3	Output Adjustment (SDK : ON)	Figure 15	98.1MHz, 15dB (SK, BK, DK : ON) (Mod, 1kHz Dev. 75kHz)	98.1MHz	Speaker Output	VR203 for Maximum Output.

3 TAPE PLAYER SECTION

(1) Connections

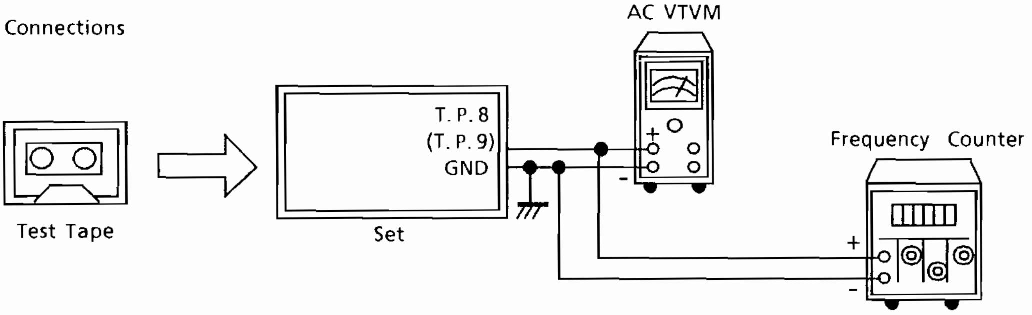


Figure 17

(2) Control Settings

Power Switch	ON
Fader Control	Front
Balance Control	Mechanical Center
Treble / Bass Control	Mechanical Center
Others	OFF

(3) Adjustment Procedures

Step	Description	Test Tape	Connection	Test Point	Adjustment Point	Adjustment
1	Head Azimuth Adjustment	MTT-114NB (14KHz)	Figure 17	T.P.8 (Lch) T.P.9 (Rch)	Head Azimuth Adjustment Screws (Figure 18)	Adjust for Max. and same level output at Normal and Reverse positions.
2	Dolby Level Adjustment	MTT-150 (400KHz)	Figure 17	T.P.8 (Lch) T.P.9 (Rch)	VR209 (Lch) VR210 (Rch)	Adjust for 245 ± 10mV at T.P.8 (Lch) and T.P.9 (Rch).
3	Tape speed Adjustment	MTT-111N (3KHz)	Figure 17	T.P.8 (Lch) or T.P.9 (Rch)	Tape Speed Adjustment (Figure 19)	Adjust for 2,970 to 3,090Hz at T.P.8 (T.P.9).

Notes : ☐ : For 7516M Model Only, ■ : For 7516MM Model Only, ▲ : For 7516L Model Only, Others : Common.

Adjustment Locations

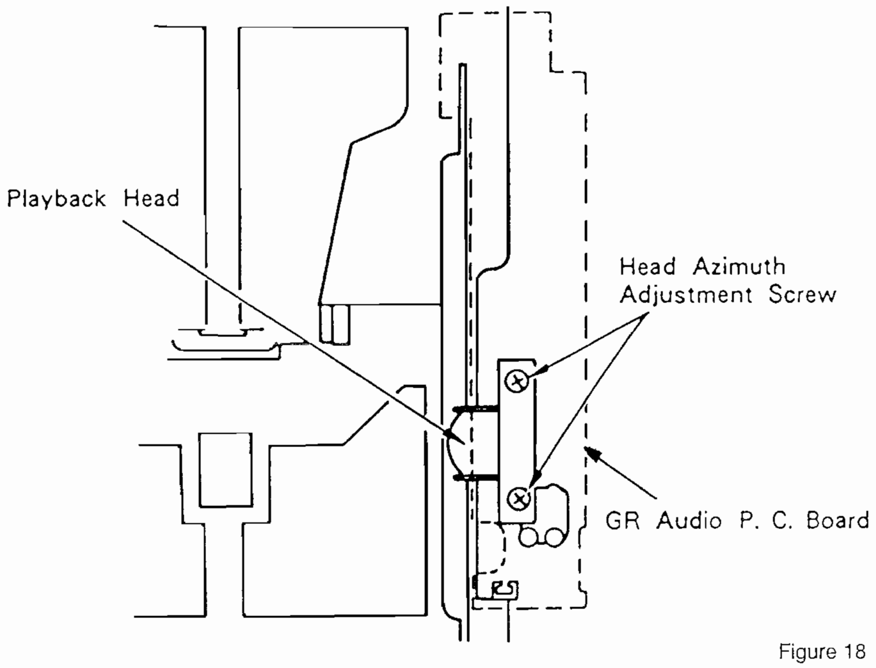

Playback Head
Head Azimuth Adjustment Screw
GR Audio P. C. Board

Figure 18

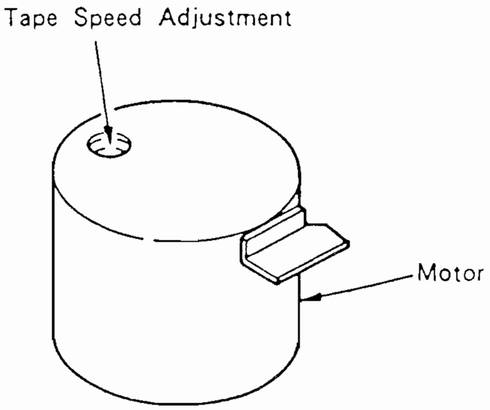
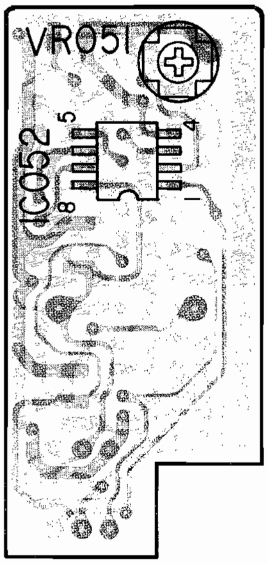
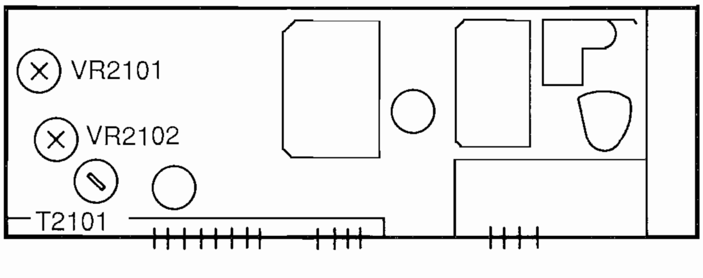

Tape Speed Adjustment
Motor

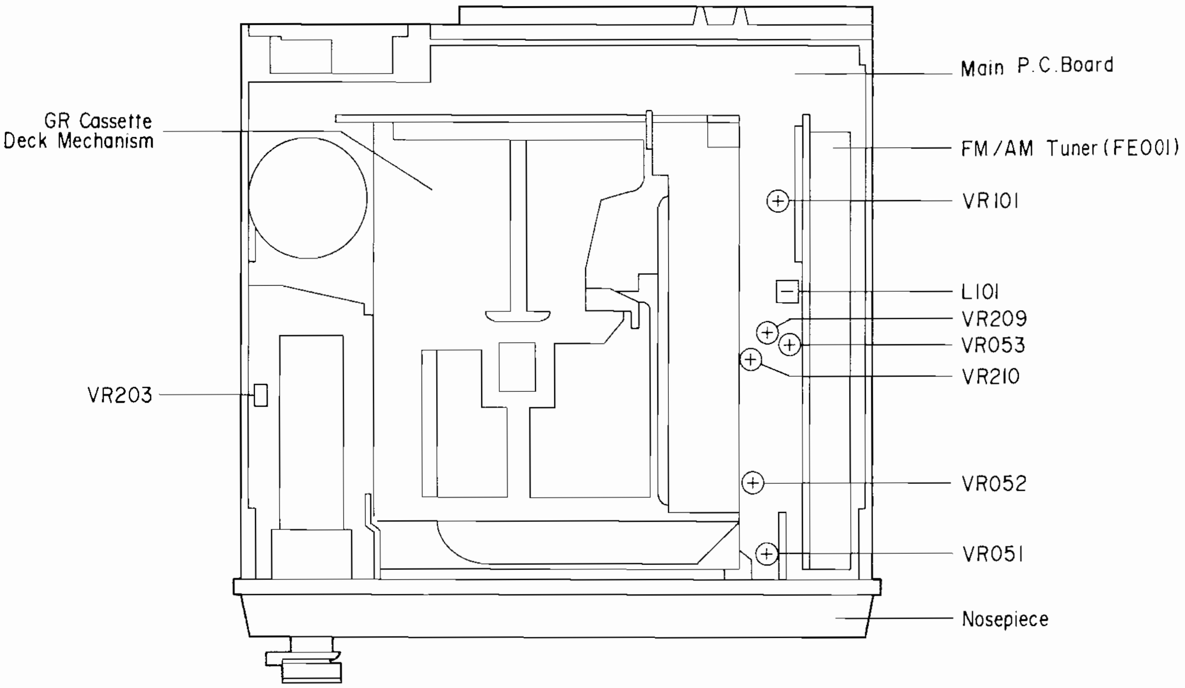
Figure 19

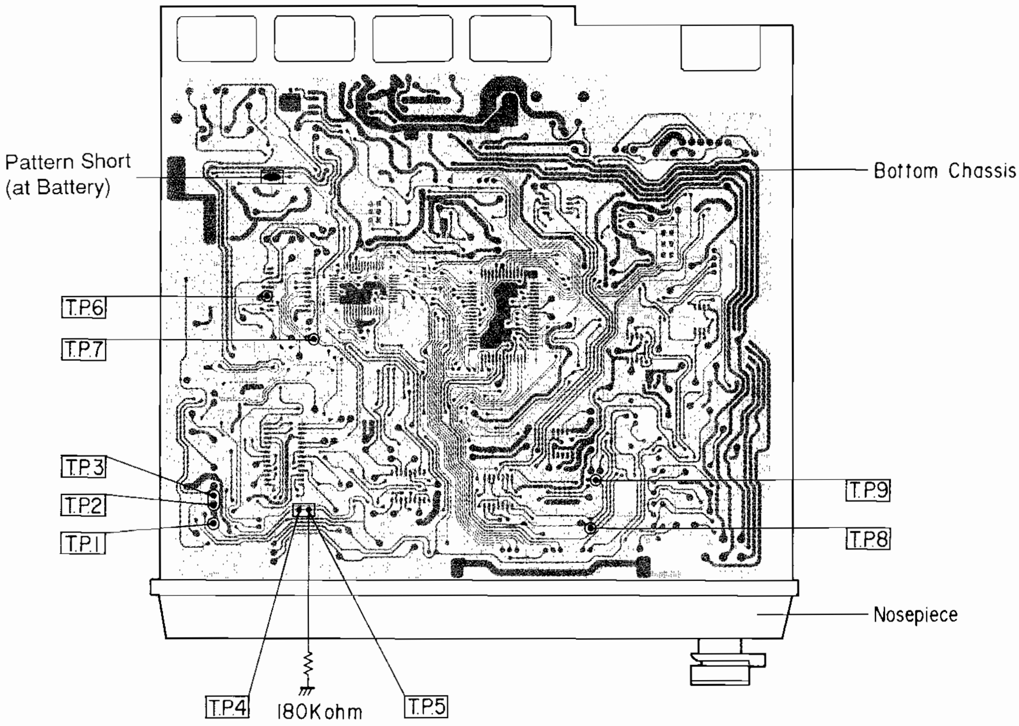

VR051
IC052
5
4
8

**MPX Control P. C. Board
(Component Side)**

FM /AM Tuner Unit


VR2101
VR2102
T2101


Main P.C.Board
GR Cassette Deck Mechanism
FM/AM Tuner (FE001)
VR101
L101
VR209
VR053
VR210
VR203
VR052
VR051
Nosepiece


Pattern Short (at Battery)
Bottom Chassis
T.P6
T.P7
T.P3
T.P2
T.P1
T.P9
T.P8
Nosepiece
T.P4
180Kohm
T.P5

(Bottom Chassis Side)

Electrical Inspection Specification

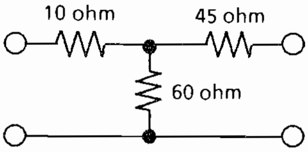
1. Measuring Conditions

(1) Power Supply : DC14 ± 0.2V
(2) Load Impedance : 4 ohm (Pre Out : 10k ohm)
(3) Power Output : 1W (2V)
(4) Signal Generator Output : SG Indication (SG of OPEN Indication)
(5) Control Settings
Fader — Front Position
Balance — Center position
Treble — Center Position
Bass — Center Position
(6) Standard Modulations

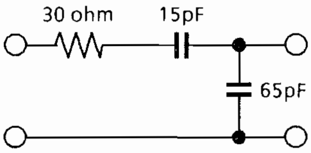
(FM) Mono : 400Hz 22.5kHz (MW / LW) 30% 400Hz
Stereo : L = R = 1kHz L + R 22.5kHz
Pilot : 8%

(7) Dummy Antenna

FM



MW / LW



2. FM Inspection

Step	Item		SG				Spec.
			f (MHz)	Input(dB)	Mod.	ST.	
1	Usable Senstitvity (IHF T-200)		90.1	14	OFF	OFF	S / N more than 30dB
			106.1	14	OFF	OFF	S / N more than 30dB
2	Stop Level (DX)	To be not Stopped	98.1	21	ON	OFF	
		To be Stopped	98.1	32	ON	OFF	27 ± 5dB
	Stop Level (LOC)	To be not Stopped	98.1	46	ON	OFF	
		To be Stopped	98.1	67	ON	OFF	57 ± 10dB
3	Distortion		98.1	72	ON	OFF	less than 1%
4	Stereo Separation		98.1	72	ON	ON : 1kHz Rch only	more than 25dB (IHF T-200)
5	Stereo Blend		98.1	43~49	ON	ON : 1kHz Rch only	8dB
6	Power Output (10% Dist.)		98.1	72	ON	OFF	more than 7.2V
7	Hi - Cut		98.1	26	ON	ON 10kHz	0 to - 9dB

Step	Item		SG				Spec
			f (MHz)	Input(dB)	Mod.	ST.	
8	TONE Control	TREBLE (10kHz)	98.1	72	ON	ON	MAX. +12±3dB
						10kHz	MIN. -12±3dB
		BASS (30Hz)	98.1	72	ON	ON	MAX. +15±4dB
						30Hz	MIN. -15±4dB
9	Loudness	100Hz	98.1	72	ON	ON 30Hz	LD indicator should turned ON. Output should be increased

3. MW Inspection

Step	Item		SG			Spec
			f (kHz)	Input(dB)	Mod.	
1	Usable Sensitivity		999	34	OFF	S/N more than 20dB
2	Stop Level (DX)	To be not Stopped	999	23	ON	
		To be Stopped	999	44	ON	34±10dB
	Stop Level (LOC)	To be not Stopped	999	52	ON	
		To be Stopped	999	86	ON	L/D 30±12dB
3	Distortion		999	74	ON	less than 1.5%
4	Level difference from FM level		999	74	ON	5±3dB

4. LW Inspection

Step	Item		SG			Spec
			f (kHz)	Input(dB)	Mod.	
1	Usable Sensitivity		216	41	OFF	S/N more than 20dB
2	Stop Level (DX)	To be not Stopped	216	23	ON	
		To be Stopped	216	44	ON	34±10dB
	Stop Level (LOC)	To be not Stopped	216	52	ON	
		To be Stopped	216	86	ON	L/D 30±12dB
3	Distortion		216	74	ON	less than 1.5%

5. SDK Inspection

Step	Item	SG				Spec
		f (kHz)	Input(dB)	Mod.	ST.	
1	SK Lighting	98.1	26	ON	ON SK, BK : ON	less than 25dB
2	Alarm Check	98.1	72	ON	OFF	Should be Alarm after about 15 sec.
3	Cut In Output Check	98.1	72	ON	ON SK, BK : ON	Output should be obtained with Volume Minimum.
4	Tape Pause Check	98.1	72	ON	ON SK, BK : ON	Should be pause with PAC Inserted.

6. TAPE Inspection

Step	Item		Test Tape	Spec
1	S / N		MTT-212N	JISA FILTER more than 52dB
2	Separation		MTT-141N	NOR : L only REV : R only more than 30dB 1kHz B.P.F
3	Frequency Response		MTT-257K	High : more than -3dB
				Low : more than -3dB
4	Wow & Flutter		MTT-111N	less than 0.2%
5	M . S operation	To be Stopped	ITT-610	**M . S** indicator should be turned on.
		To be not Stopped	ITT-607E	
6	B . Skip		C-60 (No recoading)	**B . Skip** indicator should be turned on. FF operation after 15 sec.
7	SCAN		ITT-610	**TAPE** indicator should be blinking FF → Signal about 10sec → FF
8	REPEAT		ITT-610	**RPT** indicator should be turned on.
9	DOLBY Operation B type		C-60 (No Recoading)	DD indicator should be tuned on. Output should be decreased.
10	R . MONI (Push for 3 sec)		MTT-212N	**R . MONI** Indicator should be turned on. Should be entered RADIO mode during FF / REW.
11	PRE OUT OUTPUT		MTT-212N	more than 1V
			MTT-141N	Check L / R ch Output
12	Distortion		MTT-118N	less than 2%
13	Level difference from FM Level		MTT-212N	5 ± 3dB
14	Cross Tork		MTT-121N	1kHz B.P.F more than 45dB

Operation Check

Note : For details on operation, refer to Owner's Manual.

1. Radio Operations

(1) To be changed in order of FM1→FM2→AM, each time the **BAND** key is pushed.
(2) To be changed in order of SEEK→A.MEMO→Manual SEEK, each time the **TUNE** key is pushed.
(3) Check SEEK and Manual SEEK operations using **UP/DOWN** keys.
(4) Push **D.A.P** key for 2 sec. ...... **D.A.P** indicator should be turned on.

FM and AM can be memorized at random.

(5) Check Preset status with keys 1 to 6.
(6) Rotary Volume is pushed .... **DX** indicator should be turned on.
(7) **MONO** key on .... **MO** indicator should be turned on.
(8) Check Auto Memory operation.
(9) Push **P.SCAN** key for 3 sec .... Stations memorized should be scanned with indicators 1 to 6 blinking.
(10) Check Balance operation.
(11) Check Fader operation.

2. Tape Operations

(1) FF check .... Indicator blinking
(2) REW check .... Indicator blinking
(3) Program check .... Display should be check.
(4) **TAPE** key on .... Should be entered PAUSE Mode (indicator ◁▷)
(5) ⏏ key on .... Tape should be ejected.

3. Combination with CD Shuttle

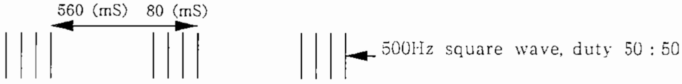
(1) CD player should be entered play mode with **T-01** indicator turned on when **DISK** key is on.
(2) Check UP/DOWN of track number with **FF/REW** keys.
(3) Check FF and REW operations by keeping to push **FF/REW** keys.
(4) Check DISC switching with Rotary Volume is push.
(5) Check **MIX** indicator and music order is changed at random with **MIX** key on.
(6) Check **PAU** indicator and the operation with **DISC** key on.
(7) Check the player enters PLAY mode when **DISC** key is on again.
(8) Turn **TAPE** or **TUNER** key on and make sure the CD player enters PAUSE mode and the unit enters TAPE or TUNER mode.
(9) Check SCAN operation with the **SCAN** key on.
(10) Check **RPT** indicator and the operation with **REPEAT** key on.
(11) Push **REPEAT** key twice and check **RPT. ALL** indicator and the operation.
(12) Play back 9th program on A.BEX TEST CD TCD-782. Output L only.
(13) Play back 11th program on A.BEX TEST CD TCD-782. Output R only.

4. BA801 Voltage Check .... more than 2.9V

Description of IC Terminals

● 35044W01 : IC501

No.	Symbol	I/O	Terminal Description
1	RUN DET	I	Signal showing take-up reel is rotating or not. Period PLAY : 530～1220 (mS) CUE, REV : 87 (mS) FF, REW : 57 (mS) DUTY SO
2	PACK DOWN SW	I	Switch to detect cassette holder is moved down completely. Pulled-up through 10k～50k ohm resistor connected to BAT+5V. H : PACK DOWN L : PACK OUT
3	PLAY SOL	O	Attracts PLAY SOL and maintains HEAD BASE moved forward. H : HEAD BASE held (PLAY SOL attracted) L : HEAD BASE retracted
4	RF SOL	O	Sets FF, REW, CUE, or REV mode by pulling RF SOL so that PINCH ROLLER is retracted from capstan shaft. H : FF, REW, CUE, or REV status (SF SOL pulled) L : Mode other than above
5	EJECT SOL	O	Performs EJECT operation by pulling EJECT SOL to engage EJECT GEARS and to rotate motor in clockwise direction. H : Pulls EJECT SOL.
6	MOTOR CONT	O	Determines rotation direction of motor in GR mechanism. H : Rotation in counterclockwise direction (Forward direction) L : Rotation in clockwise direction (Reverse direction)
7	$\overline{\text{RESET}}$	I	System reset input terminal. Active low.
8	X_1 , X_2	–	Ceramic element connection terminal for system clock OSC.
9	X_1 , X_2	–	Ceramic element connection terminal for system clock OSC.
10	LEVEL 0 FAST	O	Signal to vary gain when judging blank space between programs in MS-IC because of different signal levels in PLAY and CUE & REV. H : CUE, REV status L : PLAY status
11	MOTOR FAST	O	Switches motor speed by turning on or off governor circuit inside the motor in GR mechanism. H : Governor off (high speed) L : Governor on (low speed)
12	0. MOTOR	O	Determines start and stop of the motor in GR mechanism. H : Motor rotation L : Motor stop
13	F/$\overline{\text{R}}$	O	Determines running direction of tape depending upon rotation direction of motor. This signal is used to switch running direction and PRE AMP EQ circuit. H : FOR direction L : REV direction
14	PACK IN SW	I	Switch to detect cassette is installed into cassette holder or not. Pulled-up through 10k～50k ohm resistor connected to BAT+5V. H : PACK IN L : PACK OUT
15	GND		GND
16	MS DET	I	MS detection signal developed by MS-IC. H : Interval between programs L : On program
17	MS DET	I	MS detection signal developed by MS-IC. H : Interval between programs L : On program
18	$\overline{\text{LCD INH}}$	O	Display off input terminal for LCD driver. H : Display on L : Display off

No.	Symbol	I/O	Terminal Description
19	PWR ON+5	O	Develops high during PWR SW ON or IN PAUSE ON.
20	DTS CE	O	DTS CE control terminal. Develops high at IGN ON and low at OFF. Used by pulling down through 47k ohm.
21	SDK BUZ ON	O	Terminal to switch audio signal when developing SDK buzzer sound after 25 sec SK OFF. H : SDK buzzer on mode. L : Modes other than above
22	CHANGER ON	O	Terminal to switch audio signal in changer mode. H : Changer mode L : Modes other than changer mode
23	NC		NC
24	DOLBY B	O	Terminal to switch on Dolby IC in Dolby ON mode in Tape mode. H : Dolby B mode L : Modes other than above
25	KEY P/$\overline{\text{S}}$	O	Parallel/Serial setting output terminal for shift register used to read key matrix.
26	Vss	–	GND potential terminal
27	$\overline{\text{PWR SW ON}}$	I	POWER SW ON detection terminal. Operation stops in high level. Active low level.
28	IGN+5	I	Ignition current detection terminal. Detects a falling edge and enters standby mode. Active high level.
29	CHANGER DATA IN	I	CD CHANGER balance input terminal.
30	BAT+5	I	BATTERY power supply detection terminal. Detects falling edge and enters STANDBY mode. Active high level.
31	AREA 1	I	Initial setting input terminal. Sets destinations by varying combinations of AREA 0 and 1.
32	AREA 0	I	Initial setting input terminal. Sets destinations by varying combinations of AREA 0 and 1.
33	GND		GND
34	GND		GND
35	GND		GND
36	NC		NC
37	POWER IC ON	O	Turns on or off standby terminal of POWER IC. H : Releases standby of POWER IC. L : POWER IC standby
38	NC		NC
39	NC		NC
40	SDK BUZ TONE	O	Terminal to develop buzzer sound after 25 sec SK OFF. Frequency, waveform 
41	STS	I	Serial data signal input terminal for DTS microcomputer.
42	CMD	O	Serial data signal output terminal for DTS microcomputer.
43	$\overline{\text{SCK}}$	I	Input terminal for communication data sync signal sent from DTS microcomputer.
44	$\overline{\text{VOL PUSH KEY}}$	I	Terminal to detect VOL PUSH KEY is paused. Pulled up to PWR ON+5V. TUNER mode : DX, TAPE mode : PROG, CD mode : DISC SELECT, Active low level.

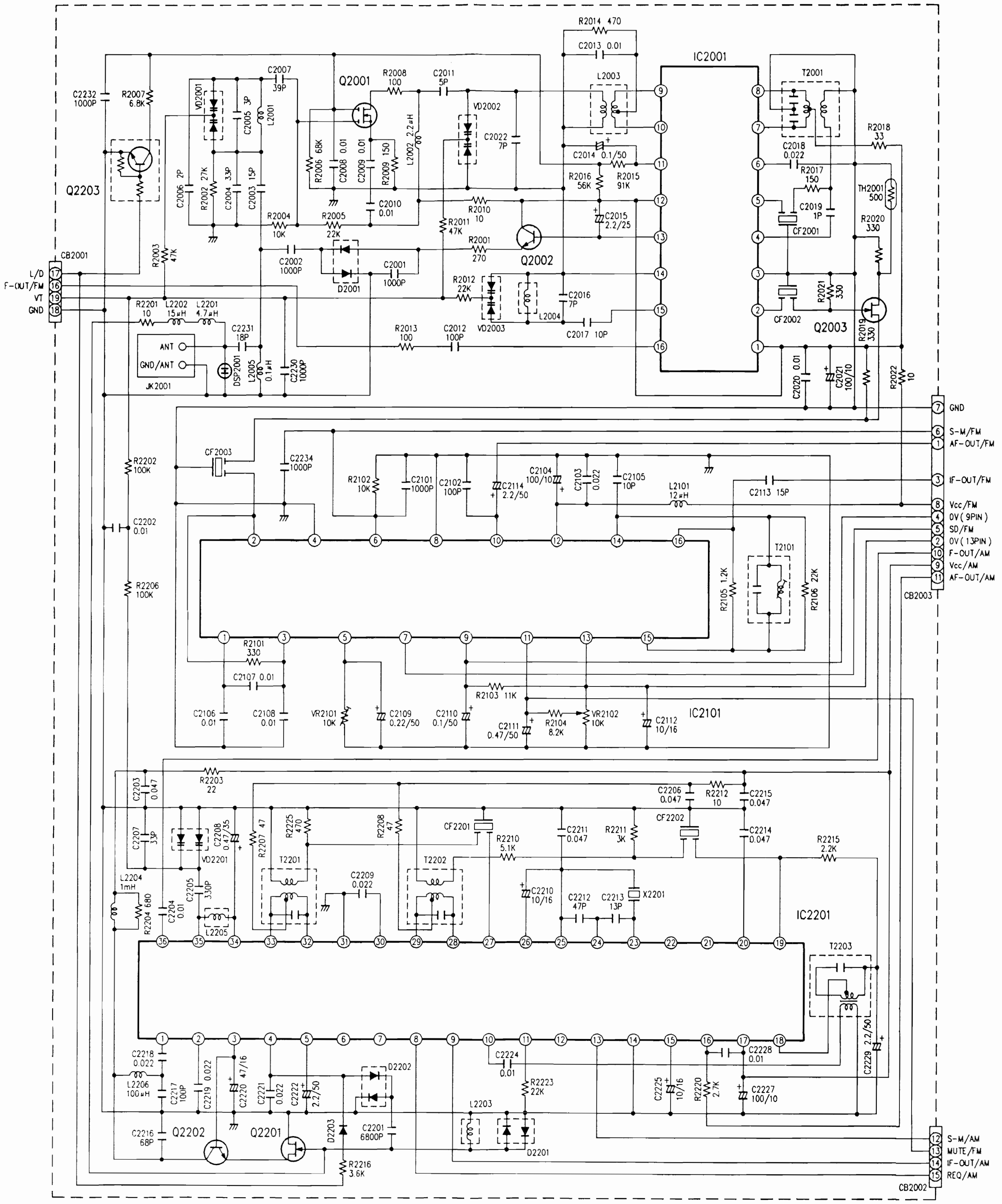
No.	Symbol	I/O	Terminal Description
45	LCD DATA	O	Serial data signal output terminal for LCD driver and shift register used to read key code matrix.
46	LCD CLK	O	Serial data sync signal output terminal for LCD and shift register used to read key matrix.
47	LCD CE	O	Serial data sync signal output terminal for LCD driver.
48	NC		NC
49	$\overline{\text{LOUD}}$	O	Terminal to turn off LOUD OFF transistor in LOUD ON mode. H : LOUD OFF L : LOUD ON
50	NC		NC
51	$\overline{\text{RADIO}}$/TAPE	O	Audio signal switching terminal for radio and tape. L : Radio mode H : Tape mode
52	CHANGER DATA OUT	O	CD CHANGER balance output terminal.
53	$\overline{\text{D MUTE}}$	I	Input terminal for audio mute signal (active low level) sent from DTS microcomputer.
54	$\overline{\text{STRT}}$	I	Input terminal for command sync signal sent from DTS microcomputer.
55	KEY IN	I	Input terminal for serial signal data sent from shift register used to read key matrix.
56	$\overline{\text{EJECT}}$	I	Terminal to detect EJECT key being pushed. Used by being pulled up with BAT+5. Active low. Accepts key input with PWR switch turned off.
57	V_{DD}	–	Positive power supply terminal.
58	V_{DD}	–	Positive power supply terminal.
59	$\overline{\text{MUTE}}$	O	Audio mute output signal developed during operation change, FF, REV, or D MUTE input. H : MUTE OFF L : MUTE ON
60	OUT REMOTE	O	Outputs when 7516M/7516MM/7516L and the other set are in operation mode (IN REMOTE : H). The signal is used as a remote signal for the other set and AMP EQ.
61	NC		NC
62	IN INTERRUPT	I	Input terminal to make SET in PAUSE status in cellular operation. H : PAUSE status L : Immediately returns to the original status.
63	IN PAUSE	I	Input terminal which accepts a signal showing the other set is in operation. Detects only a rising edge and immediately sets the PAUSE mode. H : In operation.
64	NC		NC

● 35246W01 : IC502

No.	Symbol	I/O	Terminal Description
1	EO1	O	PLL error output terminal : Develops "H" output when OSC frequency is higher than reference signal, and "L" output when low. When both are coincided, the terminal is floated.
2	NC		N. C.
3	V_{DD}		Power supply terminal.
4	NC		N. C.
5	VCOH	I	FM/AM VCO input terminal.
6	CE	I	High level input during ignition on.
7	V_{DD}		Power supply terminal.
8	NC		N. C.
9	MONO	O	Monaural control signal output terminal.
10	NC		N. C.
11	NC		N. C.
12	AM IF	I	AM IF input terminal.
13	FM IF	I	FM IF input terminal.
14	COMMAND	I	Input terminal for serial data sent from main microcomputer.
15	$\overline{SCK}$	O	Sync signal clock output terminal.
16	STATUS	O	Serial data output terminal for main microcomputer.
17	STRT	O	Output terminal for communication command sync signal to main microcomputer.
18	$\overline{MUTE}$	O	DTS mute output terminal (active low)
19	LOCAL	O	High during local seek tuned in.
20	X0		X'tal element (4.5MHz) connection terminal.
21	X1		
22	GND		GND.
23	NC		N. C.
24	TUNER ON	O	High during tuner tuned in.
25	$\overline{LW}$	O	
26	AM	O	
27	LW	O	
28 ~ 31	NC		
32 ~ 42	GND		GND
43	DK	I	DK signal input
44	SK	I	SK signal input
45	$\overline{STEREO}$	I	Low level in stereo mode.
46	SD	I	High level input during seek stop.
47	S. METER	I	FM/AM signal input terminal.
48	CI	I	Initial selection terminal. X'tal OSC in standby mode. OSC is pulled up.

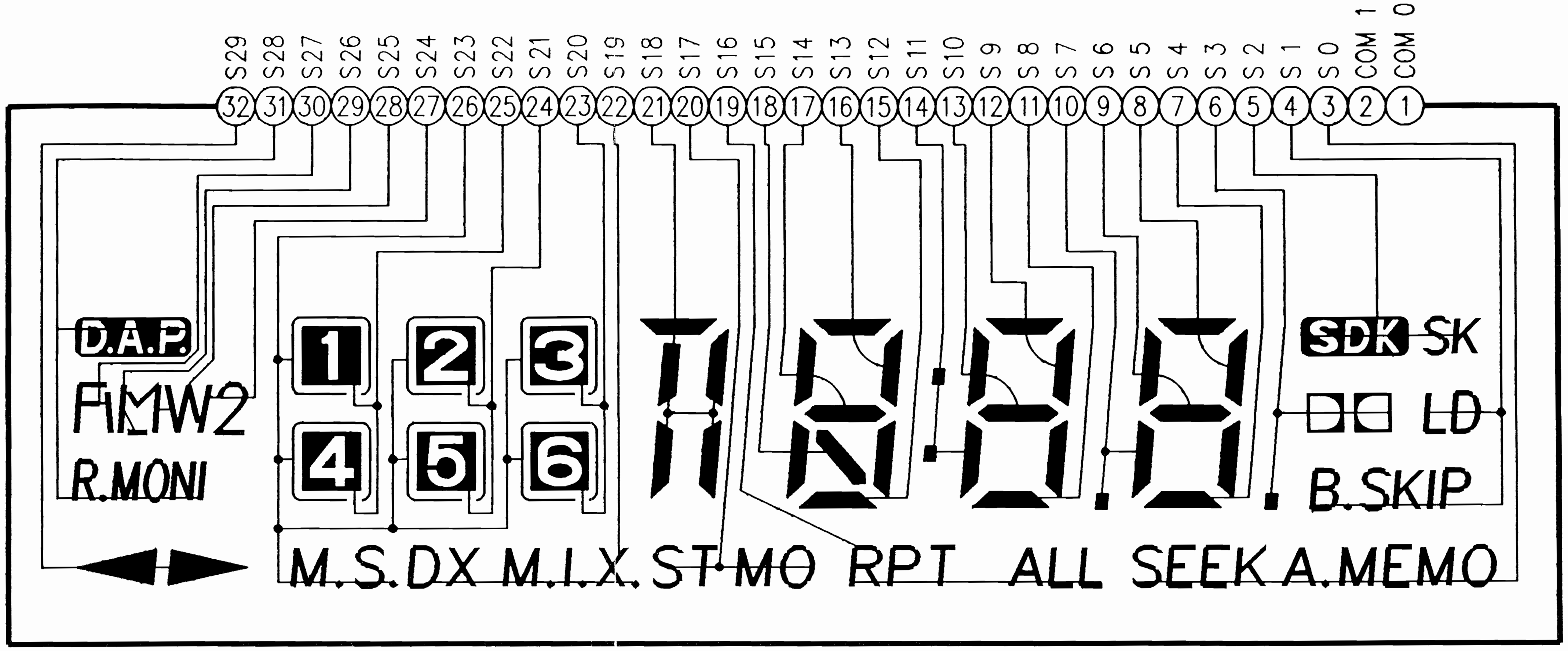
	AM	$\overline{LW}$
FM	L	H
AM (MW)	H	H
LW	H	L

Tuner Schematic Diagram


IC2001
IC2101
IC2201
Q2001
Q2002
Q2003
Q2201
Q2202
Q2203
T2001
T2101
T2201
T2202
T2203
CB2001
CB2002
CB2003
JK2001
ANT
GND/ANT
L/D
F-OUT/FM
VT
GND
S-M/FM
AF-OUT/FM
IF-OUT/FM
Vcc/FM
0V(9PIN)
SD/FM
0V(13PIN)
F-OUT/AM
Vcc/AM
AF-OUT/AM
S-M/AM
MUTE/FM
IF-OUT/AM
REQ/AM

FL Display

SEGMENT


S29
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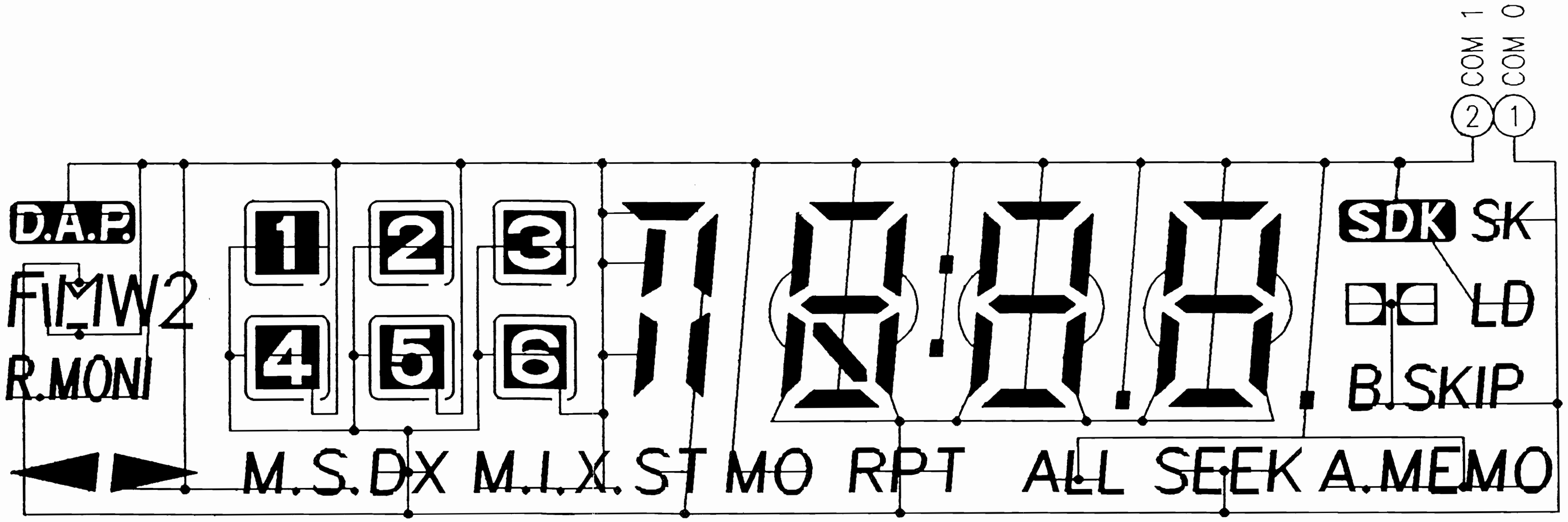
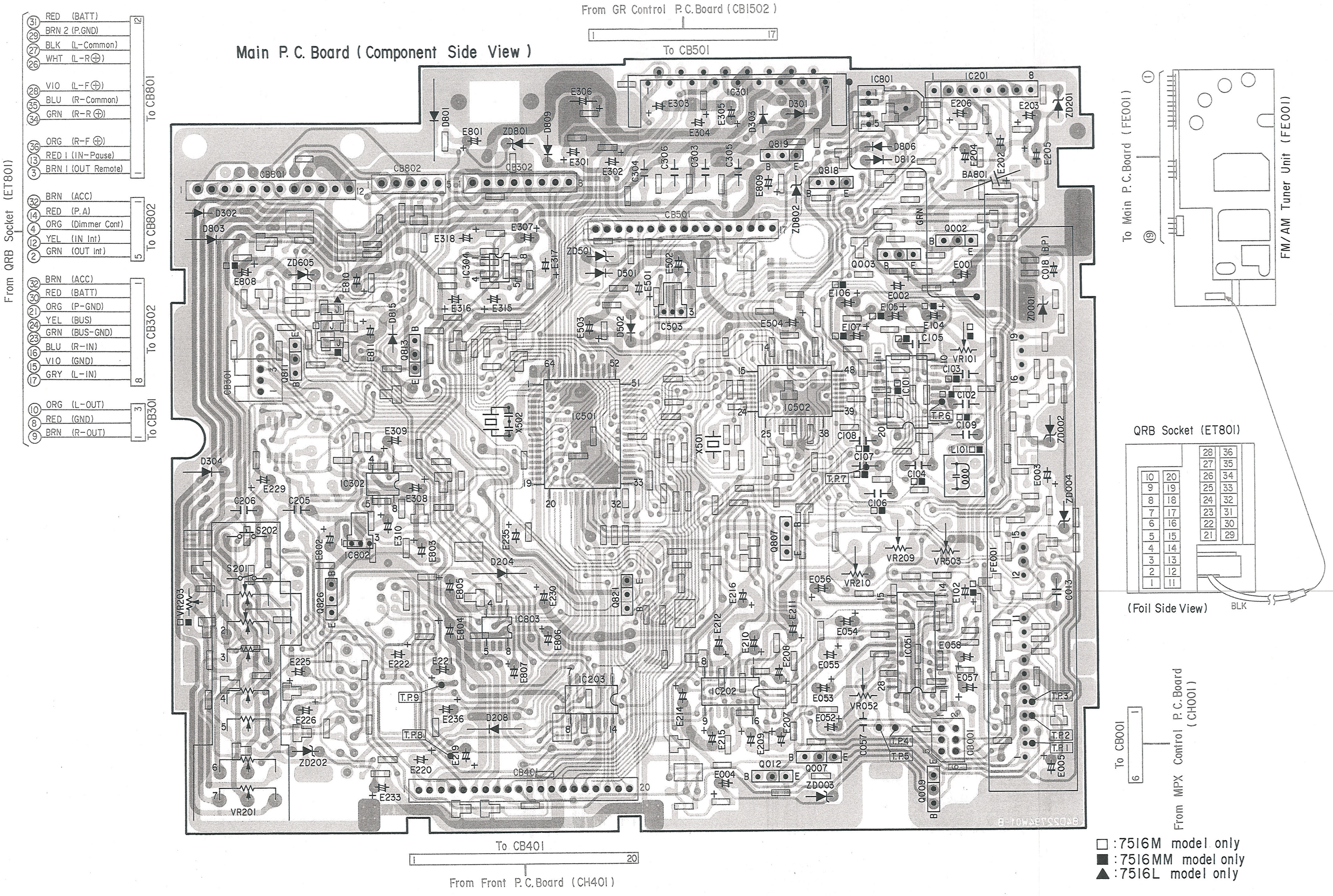
S13
S12
S11
S10
S9
S8
S7
S6
S5
S4
S3
S2
S1
S0
COM 1
COM 0
D.A.P.
FM MW2
R.MONI
1
2
3
4
5
6
SDK SK
LD
B.SKIP
M.S.DX M.I.X. ST MO RPT ALL SEEK A.MEMO

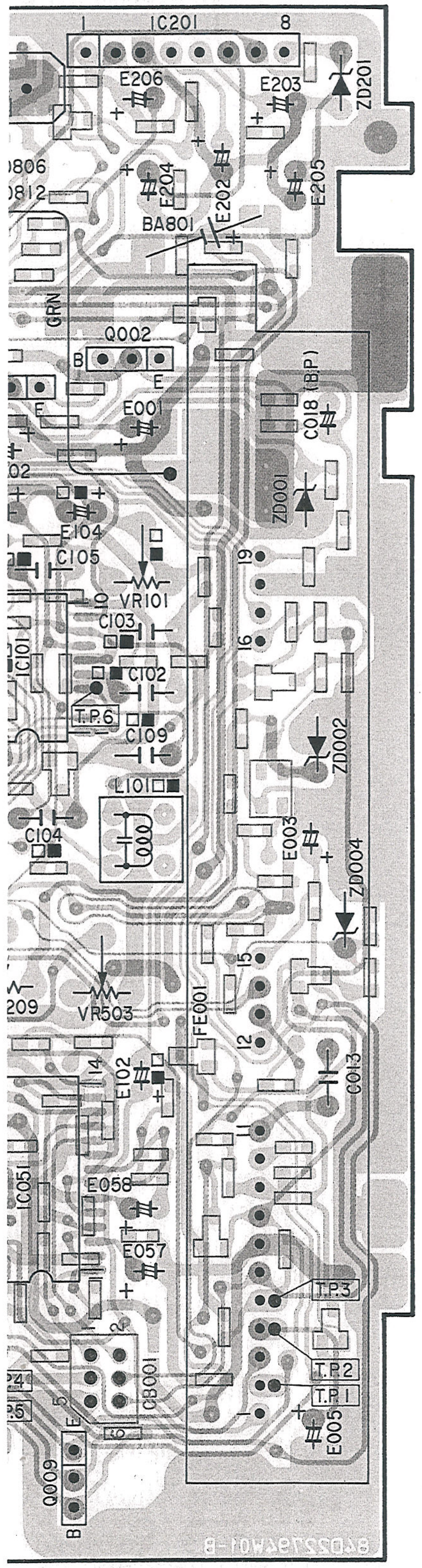
COMMON

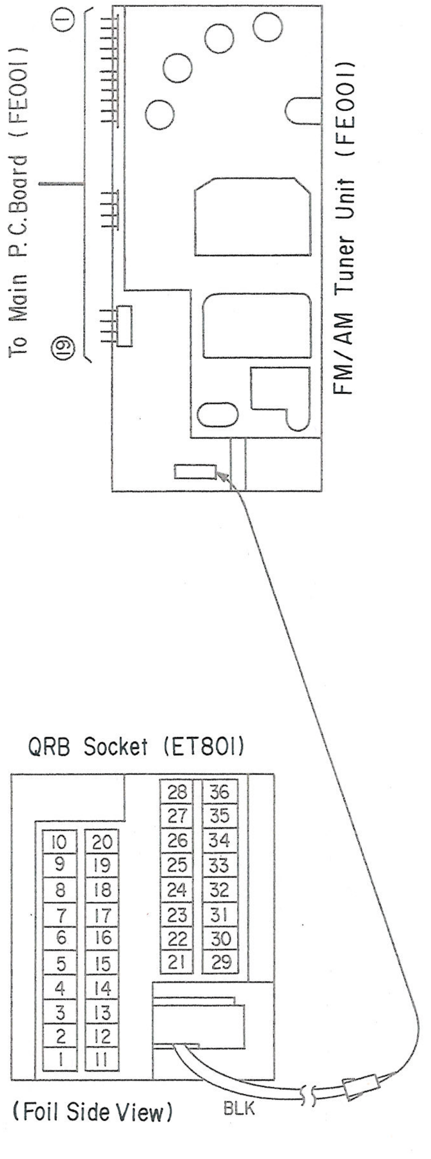

COM 1
COM 0
2
1
D.A.P.
FM MW2
R.MONI
1
2
3
4
5
6
SDK SK
LD
B.SKIP
M.S.DX M.I.X. ST MO RPT ALL SEEK A.MEMO

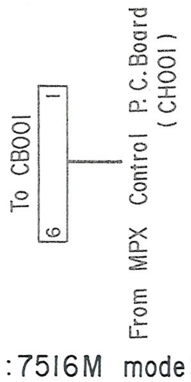
Parts Layout on P. C. Boards and Wiring Diagram (1/2)


From QRB Socket (ET801)
31 RED (BATT)
29 BRN 2 (P.GND)
27 BLK (L-Common)
26 WHT (L-R⊕)
28 VIO (L-F⊕)
35 BLU (R-Common)
34 GRN (R-R⊕)
36 ORG (R-F⊕)
13 RED 1 (IN-Pause)
3 BRN 1 (OUT Remote)
To CB801
1
12
32 BRN (ACC)
14 RED (P.A)
4 ORG (Dimmer Cont)
12 YEL (IN Int)
2 GRN (OUT Int)
To CB802
1
5
32 BRN (ACC)
30 RED (BATT)
21 ORG (P-GND)
24 YEL (BUS)
23 GRN (BUS-GND)
16 BLU (R-IN)
15 VIO (GND)
17 GRY (L-IN)
To CB302
1
8
10 ORG (L-OUT)
8 RED (GND)
9 BRN (R-OUT)
To CB301
3
1
From GR Control P.C.Board (CB1502)
1
17
To CB501
Main P. C. Board (Component Side View)
CB801
CB802
CB302
CB501
CB301
CB401
IC301
IC201
IC801
IC304
IC501
IC502
IC503
IC302
IC802
IC803
IC203
IC202
IC051
BA801
X501
X502
S201
S202
VR201
VR203
VR101
VR209
VR503
VR210
VR052
FE001
To CB401
1
20
From Front P.C.Board (CH401)
To Main P.C.Board (FE001)
1
19
FM/AM Tuner Unit (FE001)
QRB Socket (ET801)
28 36
27 35
10 20 26 34
9 19 25 33
8 18 24 32
7 17 23 31
6 16 22 30
5 15 21 29
4 14
3 13
2 12
1 11
(Foil Side View)
BLK
To CB001
1
6
From MPX Control P.C.Board (CH001)
1
2
3
4
5
A
B
C
D
E
F
G
H

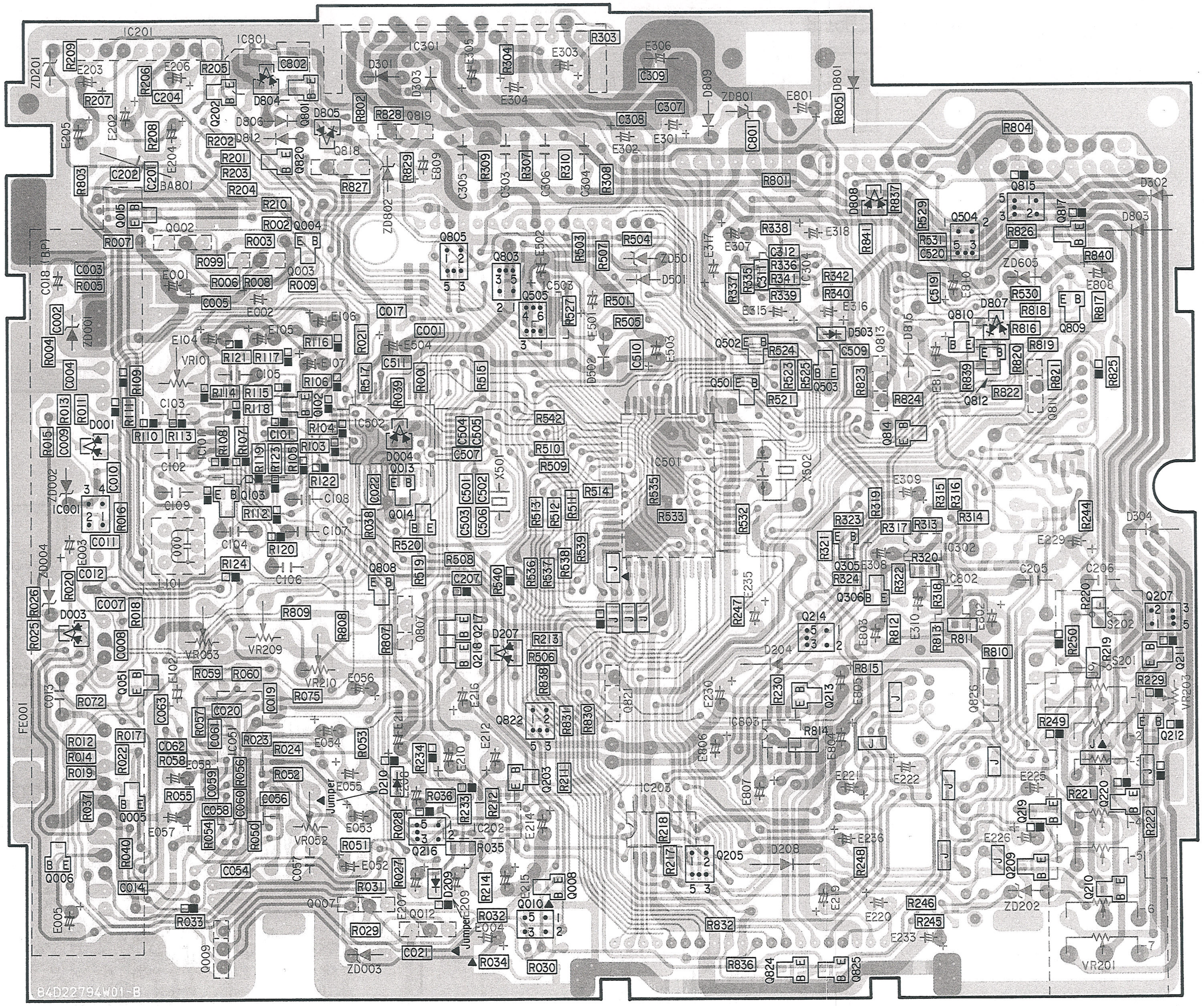
□ :7516M model only
■ :7516MM model only
▲ :7516L model only


IC201
BA801
Q002
VR101
VR503
FE001
CB001
T.P.1
T.P.2
T.P.3
T.P.6
Q009
L101
GRN


To Main P.C.Board (FE001)
FM/AM Tuner Unit (FE001)
①
⑲
QRB Socket (ET801)
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28
29 30 31 32 33 34 35 36
(Foil Side View)
BLK


To CB001
1
6
From MPX Control P.C.Board (CH001)

Main P.C.Board (Foil Side View)

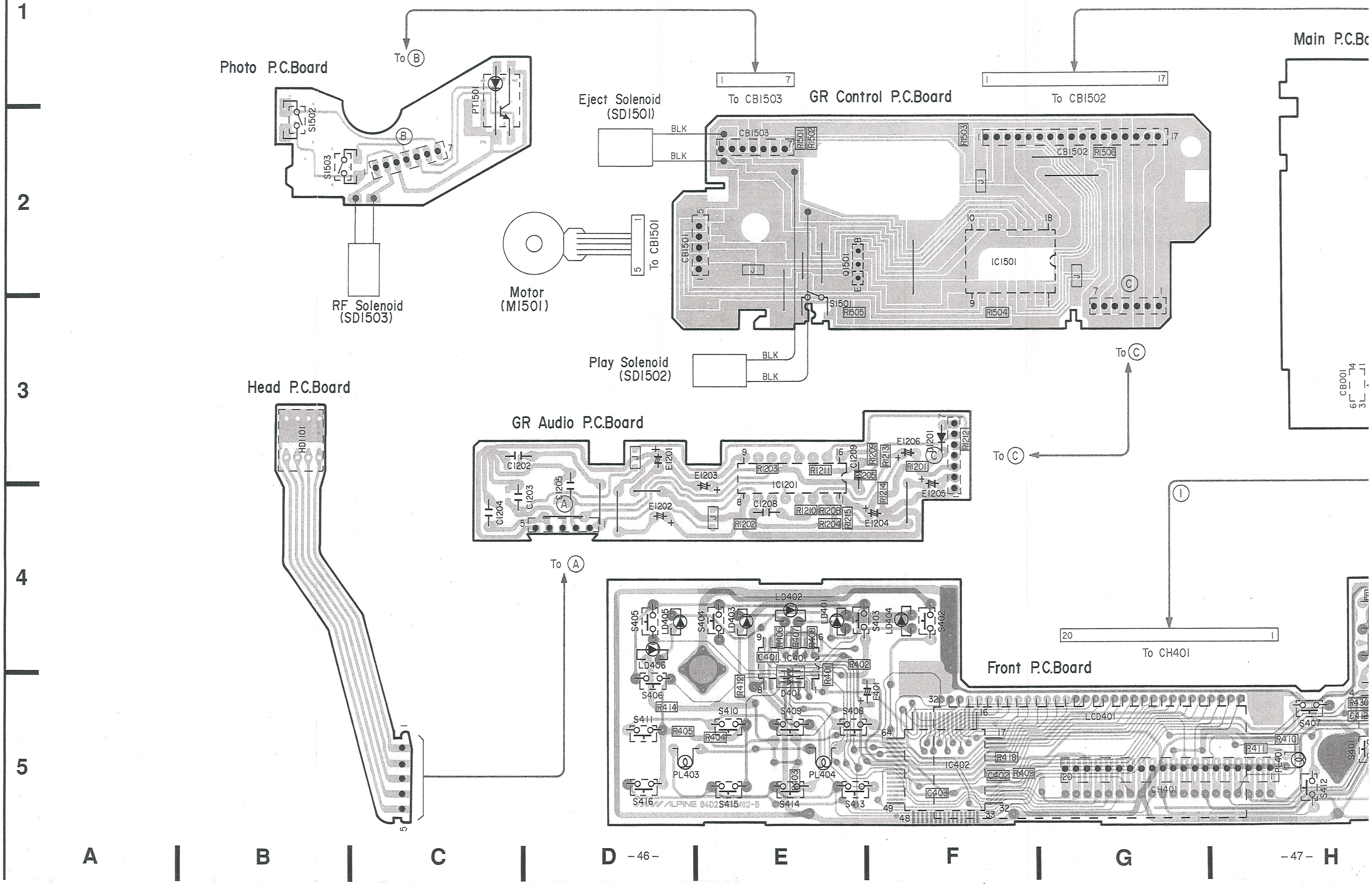

IC201
IC801
IC301
IC501
IC502
IC503
IC001
IC205
IC602
IC302
IC603
BA801
FE001
X501
X502
VR101
VR053
VR209
VR210
VR052
VR201
VR203
84D22794W01-B

□ :7516M model only
■ :7516MM model only
▲ :7516L model only

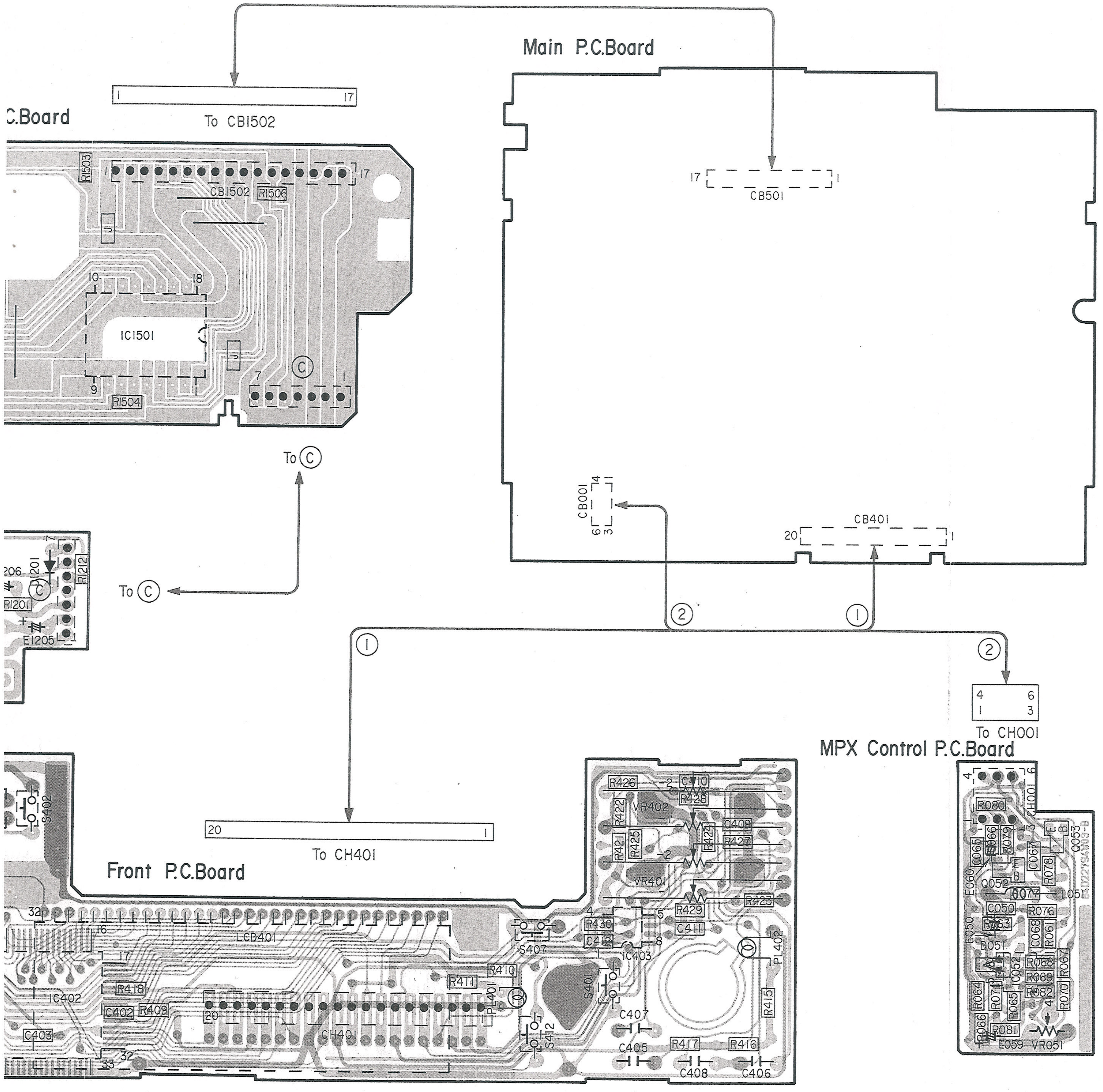
Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern

Parts Layout on P. C. Boards and Wiring Diagram (2/2)

All P.C.Boards viewed from soldered side.


1
2
3
4
5
To B
Photo P.C.Board
S1502
S1503
PT1501
B
7
To CB1503
1
7
GR Control P.C.Board
To CB1502
1
17
Main P.C.Board
Eject Solenoid
(SD1501)
BLK
BLK
CB1503
R1501
R1502
R1503
CB1502
R1506
CB1501
Q1501
IC1501
10
18
9
7
C
S1501
R1505
R1504
RF Solenoid
(SD1503)
Motor
(M1501)
To CB1501
Play Solenoid
(SD1502)
BLK
BLK
To C
CB001
Head P.C.Board
HD1101
GR Audio P.C.Board
C1202
C1203
C1204
C1205
A
E1201
E1202
E1203
IC1201
R1203
R1211
C1209
R1209
R1213
R1205
R1214
C1208
R1210
R1208
R1202
R1204
R1215
E1204
E1205
E1206
R1201
Q1201
R1212
C
To C
To A
I
To CH401
20
1
Front P.C.Board
LD402
LD401
LD403
LD404
LD405
LD406
S401
S402
S403
S404
S405
S406
S407
S408
S409
S410
S411
S412
S413
S414
S415
S416
R401
R402
R404
R405
R406
R407
R408
R409
R410
R411
R412
R414
R418
R430
C401
C402
C403
IC401
IC402
D401
D403
E401
LCD401
CH401
PL401
PL403
PL404
ALPINE 84D2
A
B
C
D
E
F
G
H

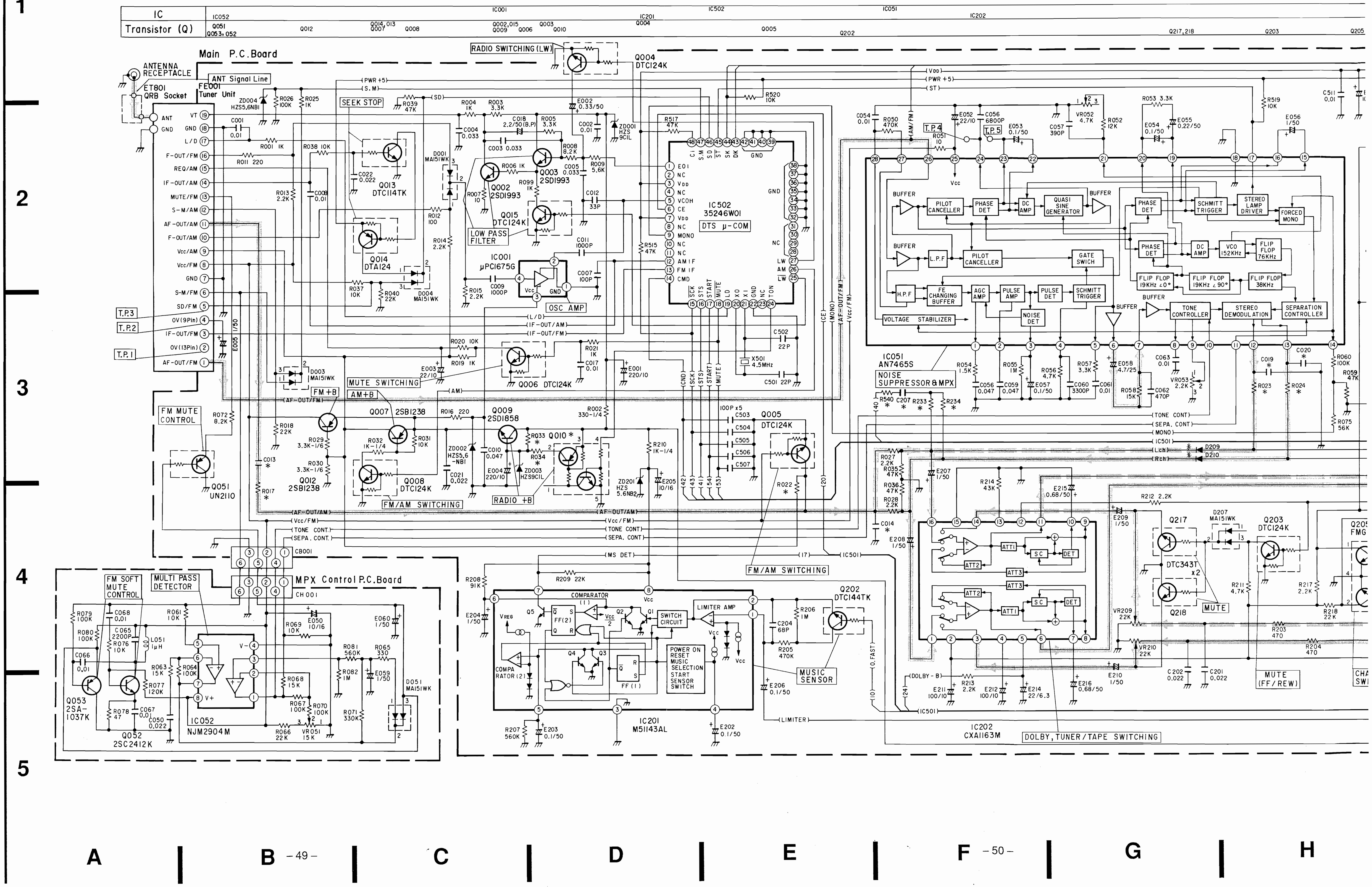
n soldered side.

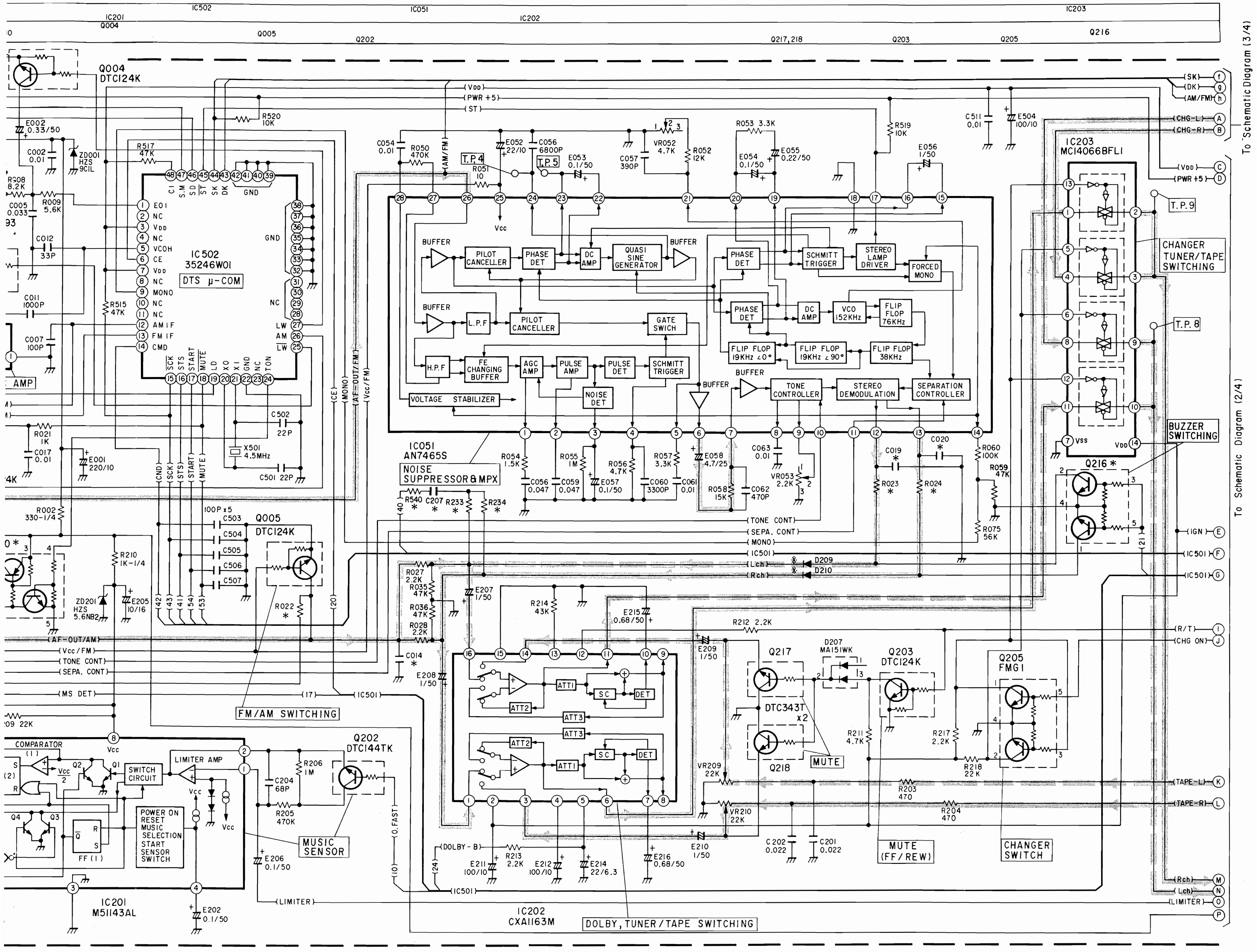

Main P.C.Board
C.Board
To CB1502
1
17
CB1502
R1503
R1506
R1504
IC1501
10
18
9
7
1
C
To C
CB501
CB001
CB401
20
4
6
1
3
2
R1201
R1212
E1205
206
C
To CH401
Front P.C.Board
S402
LCD401
IC402
C403
C402
R402
R418
CH401
R411
R410
PL401
S407
S401
S412
IC403
R430
C412
C411
R426
R422
R421
R425
VR402
VR401
R424
R428
C410
C409
R427
R429
R423
PL402
R415
C407
C405
C408
R417
R416
C406
32
33
16
17
To CH001
MPX Control P.C.Board
CH001
R080
Q066
R079
C067
R078
Q053
Q052
Q051
L051
C050
R076
R063
C068
R061
D051
R068
R067
R069
R070
R082
R064
R071
R065
C052
C066
R081
E059
E050
E060
VR051

Orange Pattern : Component Side Pattern
Blue Pattern : Foil Side Pattern

F | G | H | I | J | K | L | M |

Schematic Diagram (1/4)


IC
Transistor (Q)
IC052
Q051
Q053, 052
Q012
Q014, 013
Q007
Q008
IC001
Q002, 015
Q009
Q006
Q003
Q010
IC201
Q004
IC502
Q005
IC051
Q202
IC202
Q217, 218
Q203
Q205
Main P.C.Board
ANTENNA RECEPTACLE
ET801
QRB Socket
FE001
Tuner Unit
ANT Signal Line
RADIO SWITCHING (LW)
Q004
DTC124K
SEEK STOP
Q013
DTC114TK
Q014
DTA124
Q002
2SD1993
Q003
2SD1993
Q015
DTC124K
LOW PASS FILTER
IC001
μPC1675G
OSC AMP
IC502
35246W01
DTS μ-COM
MUTE SWITCHING
FM+B
AM+B
Q006 DTC124K
Q007 2SB1238
Q009
2SD1858
Q010
Q008
DTC124K
Q012
2SB1238
FM/AM SWITCHING
RADIO +B
Q005
DTC124K
FM MUTE CONTROL
Q051
UN2110
CB001
MPX Control P.C.Board
CH001
FM SOFT MUTE CONTROL
MULTI PASS DETECTOR
Q053
2SA-1037K
Q052
2SC2412K
IC052
NJM2904M
D051
MA151WK
IC201
M51143AL
COMPARATOR
LIMITER AMP
SWITCH CIRCUIT
POWER ON RESET MUSIC SELECTION START SENSOR SWITCH
MUSIC SENSOR
Q202
DTC144TK
FM/AM SWITCHING
IC051
AN7465S
NOISE SUPPRESSOR & MPX
BUFFER
PILOT CANCELLER
PHASE DET
DC AMP
QUASI SINE GENERATOR
PHASE DET
SCHMITT TRIGGER
STEREO LAMP DRIVER
FORCED MONO
L.P.F
GATE SWICH
DC AMP
VCO 152KHz
FLIP FLOP 76KHz
FLIP FLOP 19KHz ∠0°
FLIP FLOP 19KHz ∠90°
FLIP FLOP 38KHz
H.P.F
FE CHANGING BUFFER
AGC AMP
PULSE AMP
PULSE DET
SCHMITT TRIGGER
NOISE DET
TONE CONTROLLER
STEREO DEMODULATION
SEPARATION CONTROLLER
VOLTAGE STABILIZER
IC202
CXA1163M
DOLBY, TUNER/TAPE SWITCHING
Q217
DTC343T x2
Q218
MUTE
Q203
DTC124K
MUTE (FF/REW)
1
2
3
4
5
A
B
C
D
E
F
G
H


IC502
IC201
Q004
IC051
IC202
Q005
Q202
Q217,218
Q203
Q205
IC203
Q216
Q004
DTC124K
R520 10K
E002 0.33/50
C002 0.01
ZD001 HZS 9C1L
R517 47K
R009 5.6K
C005 0.033
C012 33P
C011 1000P
C007 100P
R515 47K
IC502 35246W01
DTS μ-COM
EO1
NC
VDD
VCOH
CE
MONO
AMIF
FM IF
CMD
GND
LW
AM
FW
X501 4.5MHz
C502 22P
C501 22P
R021 1K
C017 0.01
E001 220/10
R002 330-1/4
100P x5
C503
C504
C505
C506
C507
Q005
DTC124K
R022 *
R210 1K-1/4
ZD201 HZS 5.6NB2
E205 10/16
FM/AM SWITCHING
(AF-OUT/AM)
(Vcc/FM)
(TONE CONT)
(SEPA. CONT)
(MS DET)
COMPARATOR
SWITCH CIRCUIT
LIMITER AMP
POWER ON RESET MUSIC SELECTION START SENSOR SWITCH
FF (1)
IC201
M51143AL
E202 0.1/50
E206 0.1/50
R205 470K
C204 68P
R206 1M
Q202
DTC144TK
MUSIC SENSOR
(LIMITER)
(DOLBY-B)
(IC501)
(Vdd)
(PWR +5)
(ST)
C054 0.01
R050 470K
T.P.4
T.P.5
R051 10
E052 22/10
C056 6800P
E053 0.1/50
C057 390P
VR052 4.7K
R052 12K
R053 3.3K
E054 0.1/50
E055 0.22/50
R519 10K
E056 1/50
C511 0.01
E504 100/10
BUFFER
PILOT CANCELLER
PHASE DET
DC AMP
QUASI SINE GENERATOR
SCHMITT TRIGGER
STEREO LAMP DRIVER
FORCED MONO
L.P.F
GATE SWICH
VCO 152KHz
FLIP FLOP 76KHz
H.P.F
FE CHANGING BUFFER
AGC AMP
PULSE AMP
PULSE DET
NOISE DET
FLIP FLOP 19KHz ∠0°
FLIP FLOP 19KHz ∠90°
FLIP FLOP 38KHz
TONE CONTROLLER
STEREO DEMODULATION
SEPARATION CONTROLLER
VOLTAGE STABILIZER
IC051
AN7465S
NOISE SUPPRESSOR & MPX
R054 1.5K
C056 0.047
R055 1M
C059 0.047
R056 4.7K
E057 0.1/50
R057 3.3K
C060 3300P
C061 0.01
E058 4.7/25
R058 15K
C062 470P
C063 0.01
VR053 2.2K
C019 *
C020 *
R023 *
R024 *
R060 100K
R059 47K
R075 56K
R540 *
C207 *
R233 *
R234 *
R027 2.2K
R035 47K
R036 47K
R028 2.2K
C014 *
E207 1/50
E208 1/50
R214 43K
E215 0.68/50
ATT1
ATT2
ATT3
SC
DET
E211 100/10
R213 2.2K
E212 100/10
E214 22/6.3
E216 0.68/50
IC202
CXA1163M
DOLBY, TUNER/TAPE SWITCHING
(TONE CONT)
(SEPA. CONT)
(MONO)
(IC501)
(Lch)
(Rch)
D209
D210
R212 2.2K
E209 1/50
Q217
DTC343T x2
Q218
D207 MA151WK
Q203 DTC124K
MUTE
VR209 22K
VR210 22K
R203 470
R204 470
R211 4.7K
R217 2.2K
R218 22K
C202 0.022
C201 0.022
E210 1/50
MUTE (FF/REW)
Q205 FMG1
CHANGER SWITCH
IC203
MC14066BFL1
T.P.9
T.P.8
CHANGER TUNER/TAPE SWITCHING
BUZZER SWITCHING
Q216 *
VSS
VDD
(SK)
(DK)
(AM/FM)
(CHG-L)
(CHG-R)
(VDD)
(PWR +5)
(IGN)
(IC501)
(R/T)
(CHG ON)
(TAPE-L)
(TAPE-R)
(Rch)
(Lch)
(LIMITER)
To Schematic Diagram (3/4)
To Schematic Diagram (2/4)

IC001

1	0V
2	3.8V
3	4.7V
4	1.1V

IC051

1	2.4V		15	2.5V	
2	1.8V		16	2.5V	
3	1.3V		17	0.6V/3.8V	ST ON/OFF
4	0V		18	0V	
5	2.5V		19	2.5V	
6	1.3V		20	2.5V	
7	1.2V		21	1.4V	
8	1.9V		22	2.5V	
9	0.3V		23	2.5V	
10	4.9V		24	2.5V	
11	1.7V		25	8.3V	
12	3.1V		26	2.5V	
13	3V		27	2.3V	
14	2.3V/0V	MONO ON/OFF	28	2.5V	

IC052

1	0V
2	2.6v
3	2.5V
4	0V
5	6V
6	6V
7	6V
8	8.5V

IC502

1	PULSE		17	PULSE		33	0V	
2	PULSE		18	0V/5V	D MUTE ON/OFF	34	0V	
3	5V		19	0V/4.9V	SEEK DX/LD	35	0V	
4	0V		20	PULSE		36	0V	
5	PULSE		21	PULSE		37	0V	
6	5V		22	0V		38	0V	
7	5V		23	0V		39	0V	
8	0V		24	0V/5.1V	T/R	40	0V	
9	5.1V/0V	MONO ON/OFF	25	0V/4.9V	LW/OTHERS	41	0V	
10	0V		26	5V/0V	AM/FM	42	0V	
11	0V		27	4.9V/0V	LW/OTHERS	43	4.8V/0V	DK ON/OFF
12	0V		28	0V		44	0V/3.7V	SK ON/OFF
13	0V		29	0V		45	3.7V/3.8V	ST ON/OFF
14	PULSE		30	0V		46	3.8V/0V	SD STATION Y/N
15	PULSE		31	0V		47	4.9V	
16	PULSE		32	0V		48	5V	

IC201

1	1.4V
2	1.4V
3	0V
4	1.3V
5	0V
6	5.3V
7	5.4V
8	5.4V

	E	C	B	MODE
Q002	0V	3.3V	0.6V	
Q003	0.6V	9.2V	1.2V	
Q004	0V/0V	0V/0V	4.9V/0V	LW/OTHERS
Q005	0V	0V	8.4V	
Q006	0V	0V	4.9V	
Q007	8.5V	1.5V	8.5V	
Q008	0V	8.5V	0V	
Q009	8.5V	14.2V	9.1V	
Q012	8.5V	8.4V	7.8V	
Q013	0V	5V	0V	
Q014	5V	0V	5V	
Q015	0V	0V	5V	
Q051	1.6V	0V	1V	
Q052	0.9V	8.5V	1.5V	
Q053	6.2V	0V	5.6V	
Q202	1.4V	1.5V	0V	
Q203	0V/0V	0V/3.5V	4.6V/0V	TAPE/RADIO
Q217	0V	0V	0.4V	
Q218	0V	0V	0.3V	

IC202

1	4.3V	
2	8.5V	
3	4.3V	
4	4.3V	
5	0V/5.2V	DOLBY B ON/OFF
6	4.4V	
7	0.4V	
8	4.4V	
9	4.4V	
10	0.4V	
11	4.4V	
12	4.7V/0.1V	TAPE/RADIO
13	1.2V	
14	4.3V	
15	0V	
16	4.3V	

IC203

1	4.4V	
2	4.4V	
3	4.4V	
4	4.5V	
5	8.5V/0V	CD ON/OFF
6	8.5V/0V	CD ON/OFF
7	0V	
8	4.5V	
9	4.4V	
10	4.4V	
11	4.4V	
12	0V/7.8V	CD ON/OFF
13	0V/7.8V	CD ON/OFF
14	8.5V	

	1	2	3	4	5	MODE
Q010	0V	14.1V	14.2V	5.1V	0V	
Q205	0V/7.8V	8.5V/0V	0V/7.8V	0V	5.2V/0V	CD/OTH
Q216	0V/1.2V	0V/1.2V	4.9V/0V	0V/0V	4.9V/0V	ALARM ON/OFF

Difference List (* Mark)

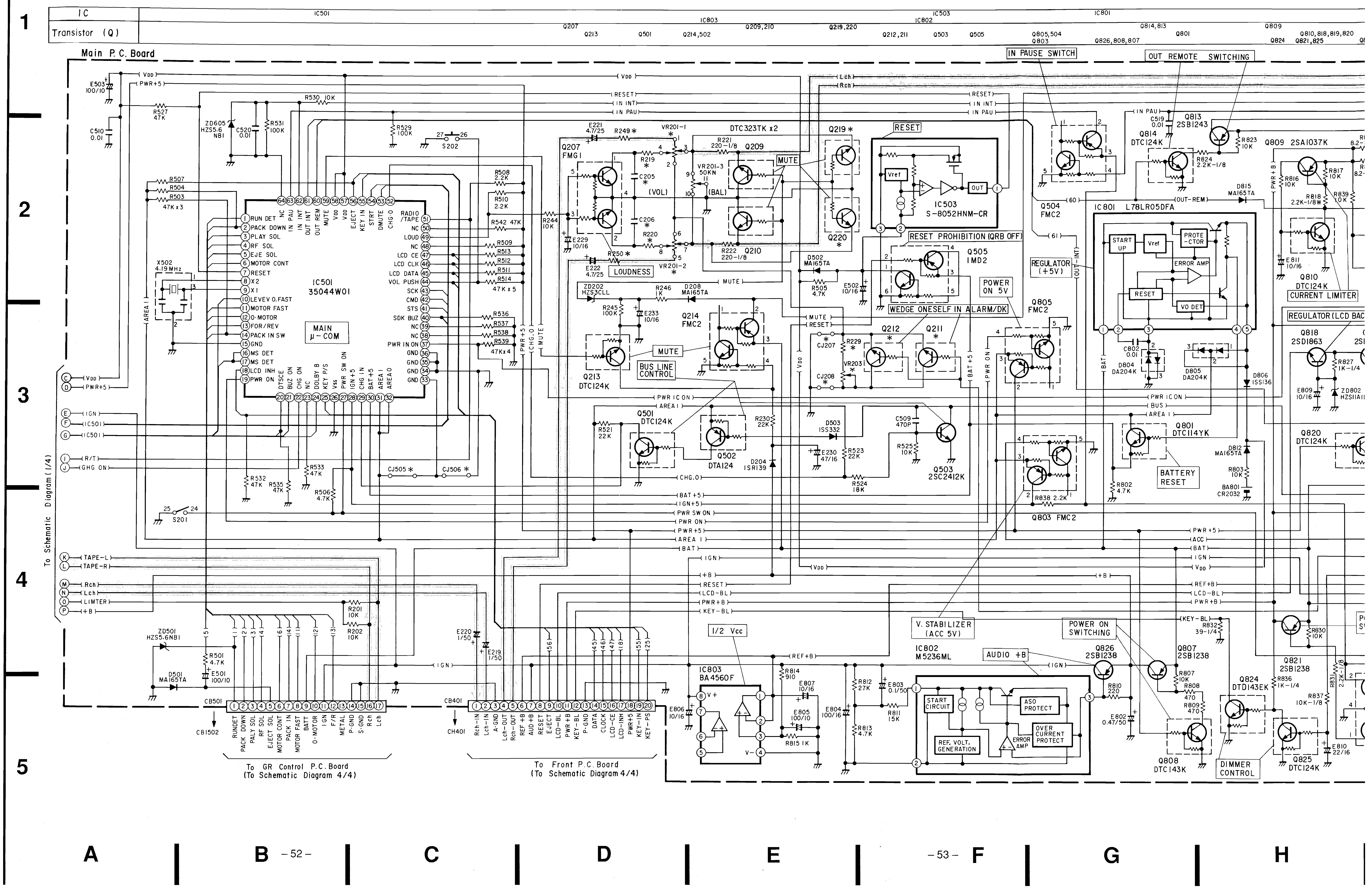
Model Ref.	7516M	7516MM	7516L
C013	0.022	0.022	0.056
C014	0.018	0.018	0.022
C019,020	0.027	0.027	0.022
C207	0.01	0.01	×
D209,210	1SS332	1SS332	J
Q010	×	×	FMC2
Q216	FMG1	FMG1	×
R017	33K	33K	18K
R022	220K	220K	91K
R023,024	3.9K	3.9K	8.2K
R033	1K-1/4	1K-1/4	×
R034	×	×	1K-1/4
R233,234	100K	100K	×
R540	47K	47K	×

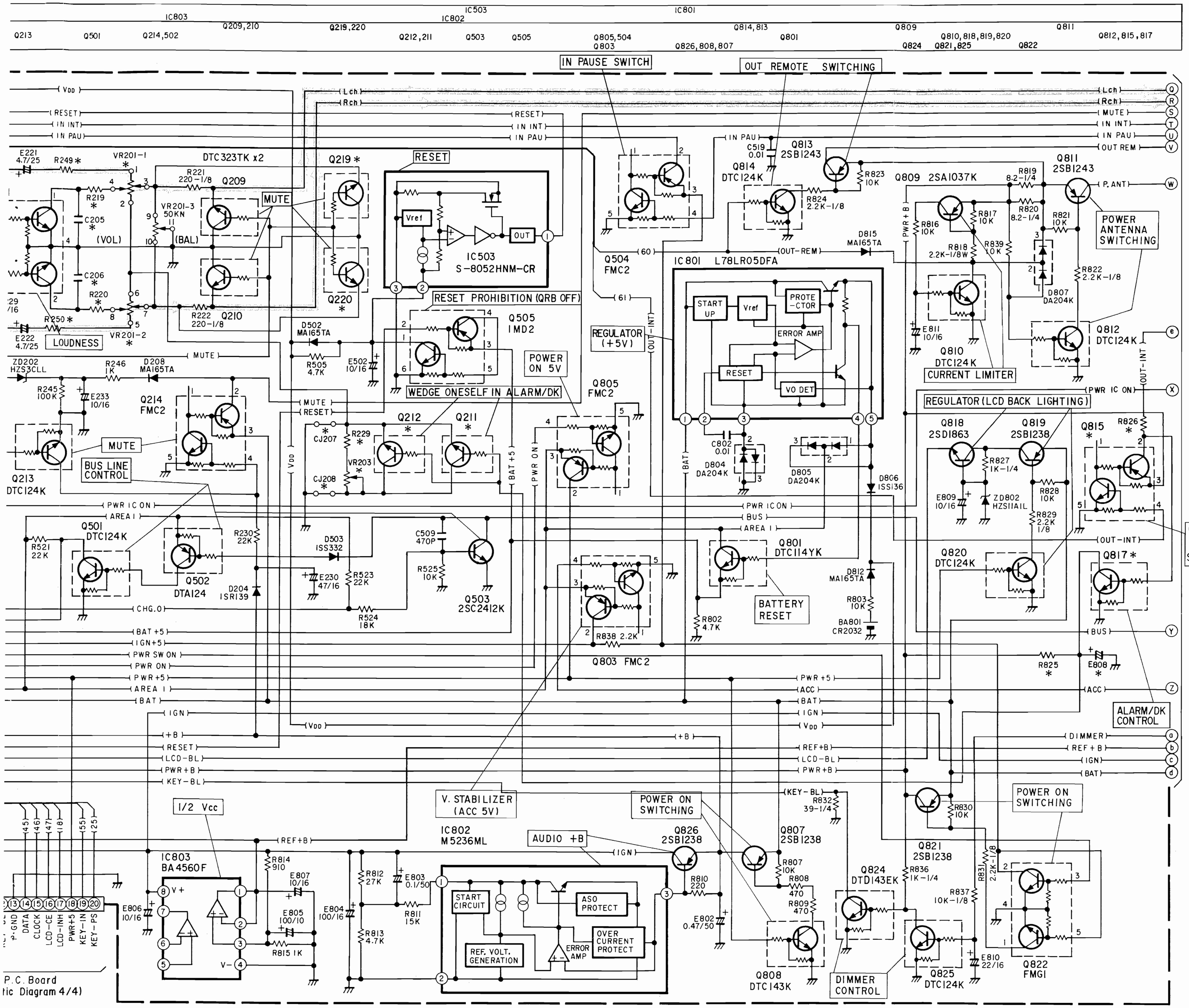
[Measuring Conditions]
- Power Supply Voltage : DC14.4V
- Measuring Meter : Digital Multimeter
- Measuring Point Reference : Between Ground
- Measuring Conditions : No Signal Input
  Tape : Blank
  FM : 98.1MHz
  LW : 216kHz
  MW : 999kHz

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (2/4)


IC
Transistor (Q)
IC501
IC803
IC503
IC802
IC801
Q207
Q213
Q501
Q214,502
Q209,210
Q219,220
Q212,211
Q503
Q505
Q805,504
Q803
Q814,813
Q826,808,807
Q801
Q809
Q824
Q810,818,819,820
Q821,825
Main P.C. Board
1
2
3
4
5
A
B
C
D
E
F
G
H
IC501
35044W01
MAIN
μ-COM
RUN DET
PACK DOWN
PLAY SOL
RF SOL
EJE SOL
MOTOR CONT
RESET
X2
X1
LEVEV O.FAST
MOTOR FAST
O-MOTOR
FOR/REV
PACK IN SW
GND
MS DET
MS DET
LCD INH
PWR ON
RADIO /TAPE
LOUD
LCD CE
LCD CLK
LCD DATA
VOL PUSH
SCK
CMD
STS
SDK BUZ
PWR IN ON
X502
4.19 MHz
S201
S202
DTC323TK x2
Q207 FMG1
Q209
Q210
Q219
Q220
MUTE
(VOL)
(BAL)
LOUDNESS
VR201-1
VR201-2
VR201-3 50KN
RESET
IC503
S-8052HNM-CR
Vref
OUT
RESET PROHIBITION (QRB OFF)
Q505 IMD2
WEDGE ONESELF IN ALARM/DK
POWER ON 5V
Q214 FMC2
Q213 DTC124K
BUS LINE CONTROL
Q212
Q211
Q501 DTC124K
Q502 DTA124
Q503 2SC2412K
Q805 FMC2
Q803 FMC2
IN PAUSE SWITCH
OUT REMOTE SWITCHING
Q504 FMC2
Q813 2SB1243
Q814 DTC124K
Q809 2SA1037K
REGULATOR (+5V)
IC801 L78LR05DFA
START UP
PROTE -CTOR
ERROR AMP
VO DET
Q810 DTC124K
CURRENT LIMITER
REGULATOR (LCD BAC
Q818 2SD1863
Q801 DTC114YK
BATTERY RESET
Q820 DTC124K
BA801 CR2032
1/2 Vcc
IC803 BA4560F
V. STABILIZER (ACC 5V)
IC802 M5236ML
START CIRCUIT
REF. VOLT. GENERATION
ASO PROTECT
OVER CURRENT PROTECT
ERROR AMP
AUDIO +B
POWER ON SWITCHING
Q826 2SB1238
Q807 2SB1238
Q808 DTC143K
Q824 DTD143EK
Q821 2SB1238
Q825 DTC124K
DIMMER CONTROL
To Schematic Diagram (1/4)
CB501
CB1502
CB401
CH401
To GR Control P.C. Board
(To Schematic Diagram 4/4)
To Front P.C. Board
(To Schematic Diagram 4/4)


IC803
IC802
IC503
IC801
Q213 Q501 Q214,502 Q209,210 Q219,220 Q212,211 Q503 Q505 Q805,504 Q803 Q826,808,807 Q814,813 Q801 Q809 Q824 Q810,818,819,820 Q821,825 Q822 Q811 Q812,815,817
IN PAUSE SWITCH
OUT REMOTE SWITCHING
RESET
IC503 S-8052HNM-CR
RESET PROHIBITION (QRB OFF)
Q505 IMD2
WEDGE ONESELF IN ALARM/DK
POWER ON 5V
REGULATOR (+5V)
IC801 L78LR05DFA
START UP
Vref
PROTE-CTOR
ERROR AMP
RESET
VO DET
Q504 FMC2
Q805 FMC2
Q803 FMC2
Q813 2SB1243
Q814 DTC124K
Q809 2SA1037K
Q811 2SB1243
POWER ANTENNA SWITCHING
Q810 DTC124K
CURRENT LIMITER
Q812 DTC124K
REGULATOR (LCD BACK LIGHTING)
Q818 2SD1863
Q819 2SB1238
Q815
Q817
OUT INTER-RUPT SWITCHING
Q820 DTC124K
Q801 DTC114YK
BATTERY RESET
ALARM/DK CONTROL
DTC323TK x2
Q209
MUTE
Q219
Q220
Q210
(VOL)
(BAL)
LOUDNESS
Q214 FMC2
MUTE
BUS LINE CONTROL
Q213 DTC124K
Q501 DTC124K
Q502 DTA124
Q503 2SC2412K
Q212
Q211
V. STABILIZER (ACC 5V)
IC802 M5236ML
AUDIO +B
START CIRCUIT
ASO PROTECT
REF. VOLT. GENERATION
ERROR AMP
OVER CURRENT PROTECT
1/2 Vcc
IC803 BA4560F
POWER ON SWITCHING
Q826 2SB1238
Q807 2SB1238
Q808 DTC143K
DIMMER CONTROL
Q824 DTD143EK
Q821 2SB1238
Q825 DTC124K
POWER ON SWITCHING
Q822 FMG1
To Schematic Diagram (3/4)
P.C. Board
tic Diagram 4/4)

IC501

1	PULSE		17	0V		33	0V/5.1V	L/M. MM	49	0V/4.7V	LOUD ON/OFF
2	5.1V/0V	PACK DN/OUT	18	PULSE		34	0V		50	0V	
3	5V/0V	PLAY/PAUSE	19	5.1V/0V	POW ON/OFF	35	0V		51	0V/4.7V	RADIO/TAPE
4	5V/0V	FF.REW/OTHERS	20	5V		36	0V		52	PULSE	
5	5V/0V	EJECT ON/OFF	21	PULSE		37	5.1V/0V	POW ON/OFF	53	5V	
6	5V/0V	FOR/REV	22	5.2V/0V	CHG/OTHERS	38	0V		54	PULSE	
7	5.1V/0V	RESET ON/OFF	23	0V		39	0V		55	PULSE	
8	PULSE		24	5.2V/0V	DOLBY B ON/OFF	40	PULSE		56	0V/5V	EJECT ON/OFF
9	PULSE		25	PULSE		41	PULSE		57	5V	
10	0V		26	0V		42	PULSE		58	5V	
11	0V		27	0V/4.3V	POW ON/OFF	43	PULSE		59	0V/5.1V	MUTE ON/OFF
12	5V	PLAY	28	5V		44	4.9V		60	5.1V/0V	O.REM ON/OFF
13	5V/0V	FOR/REV	29	PULSE		45	PULSE		61		OUT INT ON/OFF
14	5V/0V	PACK YES/NO	30	4.8V		46	PULSE		62	5.2V/0V	IN INT ON/OFF
15	0V		31	5.1V		47	PULSE		63	4.3V/0V	I.PAUSE ON/OFF
16	0V		32	5.1V		48	4.9V		64	0V	

	E	C	B	MODE
Q209	0V	0V	0V	
Q210	0V	0V	0V	
Q211	0V/0V	0V/0V	0V/5V	DK ON/OFF
Q212	0V/0V	0V/0V	0V/5V	DK ON/OFF
Q213	0V	0V	5.1V	
Q219	0V/0V	0V/0V	3.8V/0V	MUTE ON/OFF
Q220	0V/0V	0V/0V	3.8V/0V	MUTE ON/OFF
Q501	0V	5.1V	0V	
Q502	5.1V	0V	5.1V	
Q503	0V	13.9V	0V	
Q801	4.9V	5.1V	5.6V	
Q807	14.3V	14.2V	13.5V	
Q808	0V	0V	5V	
Q809	14.1V	0V	14.1V	
Q810	0V	14.1V	0V	
Q811	14.1V	14.1V	13.4V	
Q812	0V	0V	9.7V	
Q813	14.1V	14.1V	13.4V	
Q814	0V	0V	5.1V	
Q817	0V/0V	0V/4.9V	13.8V/0	DK ON/OFF
Q818	9.3V	14.2V	9.9V	
Q819	14.3V	14.2V	13.5V	
Q820	0V	0V	5V	
Q821	14.3V	14.2V	13.5V	
Q824	0V	0.1V	11.9V	
Q825	0V	11.9V	0V	
Q826	14.2V	8.5V	13.5V	

IC503

1	0V/5.1V	RESET ON/OFF
2	0V/5.1V	RESET ON/OFF
3	0V	

IC801

1	14.2V
2	6.6V.
3	0.8V
4	5.6V
5	5.8V

IC802

1	1.3V
2	0V
3	13.3V

IC803

1	4.5V
2	4.5V
3	4.5V
4	0V
5	8.5V

	1	2	3	4	5	MODE
Q207	0V	0V	2.8V	0V	2.7V	
Q214	14.2V	0V	14.3V	0V	0V	
Q504	0V/4.7V	4.3V/0V	4.3V/4.7V	9.9V/0V	0V/0V	IP/OTHERS
Q803	0V	5.1V	5.1V	6.8V	0V	
Q805	0V	5V	5.1V	5.1V	0V	
Q815	0V/14V	13.8V/0V	13.9V/14.1V	5V/0V	0V/0V	DK ON/OFF
Q822	0.1V	4.7V	0V	0V	4.7V	

	1	2	3	4	5	6	MODE
Q505	0V	0V	4.8V	4.8V	4.8V	0V	RESET

[Measuring Conditions]
- Power Supply Voltage : DC14.4V
- Measuring Meter : Digital Multimeter
- Measuring Point Reference : Between Ground
- Measuring Conditions : No Signal Input
  Tape : Blank
  FM : 98.1MHz
  LW : 216kHz
  MW : 999kHz

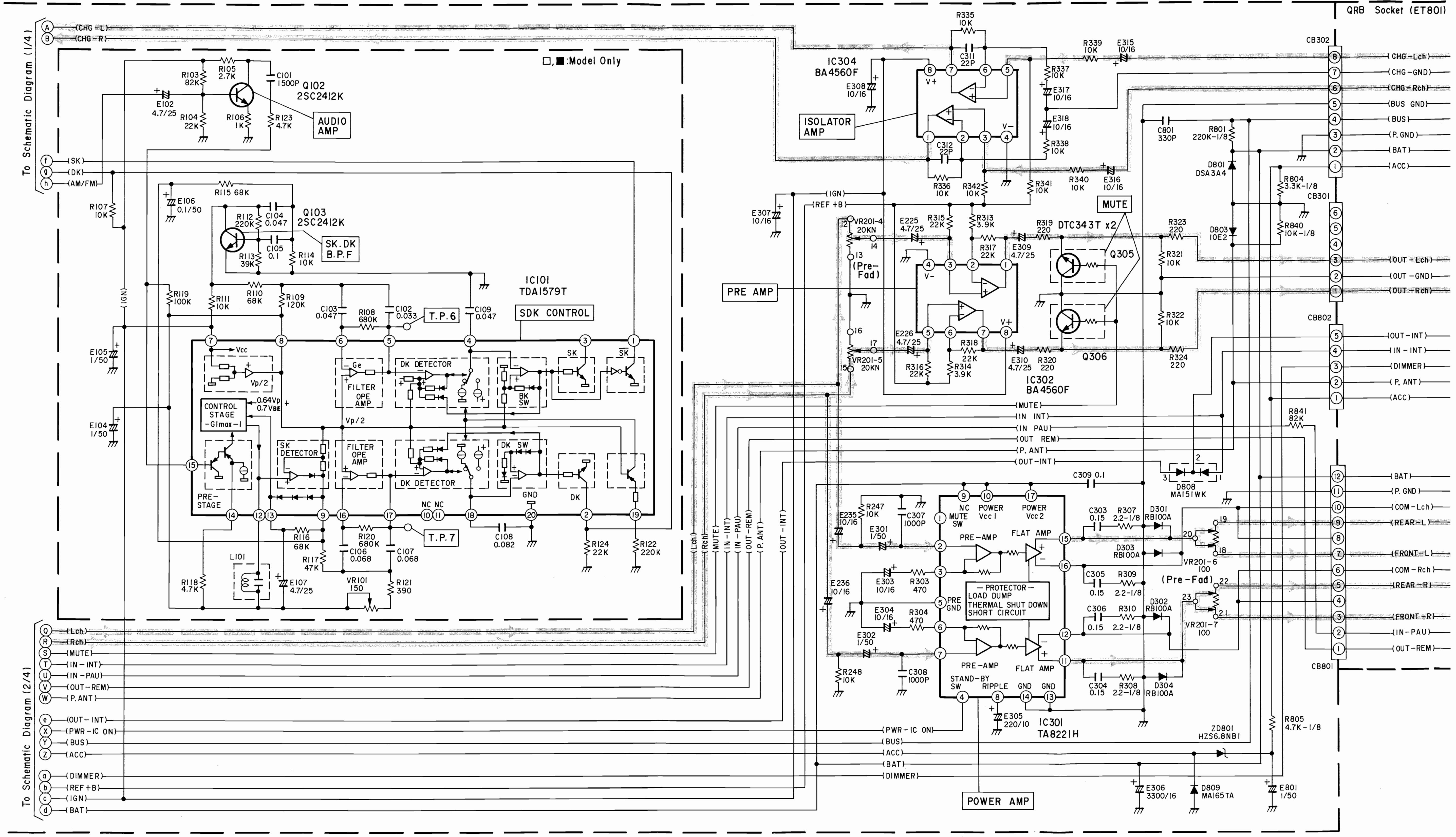
Difference List (✱ Mark)

Model / Ref.	7516M	7516MM	7516L
C205.206	0.033	0.033	0.1
CJ207	×	×	J
CJ208	J	J	×
CJ505	J	J	×
CJ506	×	×	J
E808	47-16	47-16	×
Q211.212	DTC323TK	DTC323TK	×
Q219.220	DTC323TK	DTC323TK	×
Q815	FMC2	FMC2	×
Q817	DTC124K	DTC124K	×
R219.220	5.6K	5.6K	1.8K
R229	680	680	×
R249.250	100	100	×
R825	2.2K-1/8	2.2K-1/8	×
R826	1K-1/4	1K-1/4	×
VR201	100K	100K	20K
VR203	10K	10K	×

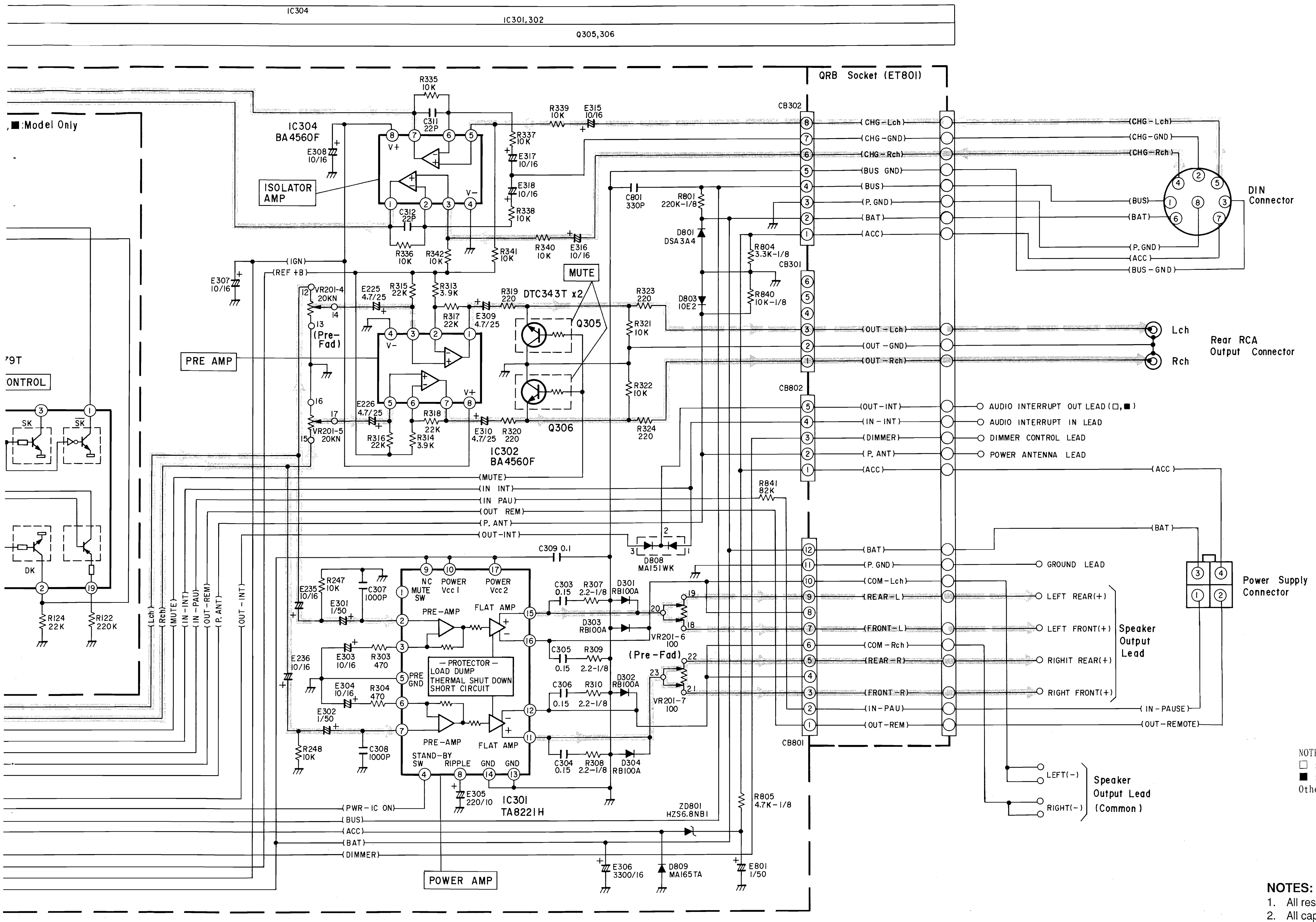
NOTES:
1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (3/4)

IC	IC101	IC304	IC301.302
Transistor (Q)	Q102,103		Q305,306



Main P.C.Board
QRB Socket (ET801)
To Schematic Diagram (1/4)
To Schematic Diagram (2/4)
□,■:Model Only
(CHG-L)
(CHG-R)
(SK)
(DK)
(AM/FM)
R103 82K
R105 2.7K
C101 1500P
Q102 2SC2412K
E102 4.7/25
R104 22K
R106 1K
R123 4.7K
AUDIO AMP
R115 68K
E106 0.1/50
R112 220K
C104 0.047
Q103 2SC2412K
SK.DK B.P.F
R113 39K
C105 0.1
R114 10K
R107 10K
R119 100K
R111 10K
R110 68K
R109 120K
C103 0.047
R108 680K
C102 0.033
T.P.6
C109 0.047
IC101 TDA1579T
SDK CONTROL
E105 1/50
E104 1/50
CONTROL STAGE -Glmax-I
0.64Vp 0.7VBE
Vp/2
FILTER OPE AMP
DK DETECTOR
BK SW
SK
SK DETECTOR
DK SW
DK
PRE-STAGE
GND
NC NC
R116 68K
R120 680K
C106 0.068
C107 0.068
T.P.7
C108 0.082
R124 22K
R122 220K
R117 47K
L101
E107 4.7/25
VR101 150
R121 390
R118 4.7K
(IGN)
(Lch)
(Rch)
(MUTE)
(IN-INT)
(IN-PAU)
(OUT-REM)
(P.ANT)
(OUT-INT)
(PWR-IC ON)
(BUS)
(ACC)
(DIMMER)
(REF+B)
(BAT)
R335 10K
C311 22P
IC304 BA4560F
E308 10/16
ISOLATOR AMP
C312 22P
R336 10K
R342 10K
R341 10K
R337 10K
E317 10/16
E318 10/16
R338 10K
R339 10K
E315 10/16
R340 10K
E316 10/16
C801 330P
R801 220K-1/8
D801 DSA3A4
R804 3.3K-1/8
R840 10K-1/8
D803 10E2
MUTE
E307 10/16
VR201-4 20KN
(Pre-Fad)
E225 4.7/25
R315 22K
R313 3.9K
R319 220
DTC343T x2
R317 22K
E309 4.7/25
Q305
Q306
R323 220
R321 10K
R322 10K
R324 220
PRE AMP
E226 4.7/25
R318 22K
R316 22K
R314 3.9K
E310 4.7/25
R320 220
IC302 BA4560F
VR201-5 20KN
R841 82K
D808 MA151WK
C309 0.1
E235 10/16
R247 10K
C307 1000P
E301 1/50
NC MUTE SW
POWER Vcc1
POWER Vcc2
PRE-AMP
FLAT AMP
C303 0.15
R307 2.2-1/8
D301 RB100A
D303 RB100A
VR201-6 100
(Pre-Fad)
E236 10/16
E303 10/16
R303 470
E304 10/16
R304 470
PRE GND
- PROTECTOR - LOAD DUMP THERMAL SHUT DOWN SHORT CIRCUIT
C305 0.15
R309 2.2-1/8
D302 RB100A
C306 0.15
R310 2.2-1/8
VR201-7 100
E302 1/50
R248 10K
C308 1000P
STAND-BY SW
RIPPLE
C304 0.15
R308 2.2-1/8
D304 RB100A
E305 220/10
IC301 TA8221H
ZD801 HZS6.8NB1
R805 4.7K-1/8
POWER AMP
E306 3300/16
D809 MA165TA
E801 1/50
CB302
(CHG-Lch)
(CHG-GND)
(CHG-Rch)
(BUS GND)
(BUS)
(P.GND)
(BAT)
(ACC)
CB301
(OUT-Lch)
(OUT-GND)
(OUT-Rch)
CB802
(OUT-INT)
(IN-INT)
(DIMMER)
(P.ANT)
(ACC)
CB801
(BAT)
(P.GND)
(COM-Lch)
(REAR-L)
(FRONT-L)
(COM-Rch)
(REAR-R)
(FRONT-R)
(IN-PAU)
(OUT-REM)
1
2
3
4
5
A
B
C
D
E
F
G
H


IC304
IC301,302
Q305,306
■:Model Only
IC304
BA4560F
ISOLATOR AMP
R335 10K
C311 22P
C312 22P
E308 10/16
R337 10K
E317 10/16
E318 10/16
R338 10K
R336 10K
R342 10K
R341 10K
R339 10K
E315 10/16
R340 10K
E316 10/16
MUTE
DTC343T x2
Q305
Q306
IC302
BA4560F
PRE AMP
VR201-4 20KN
VR201-5 20KN
(Pre-Fad)
E225 4.7/25
E226 4.7/25
R315 22K
R313 3.9K
R317 22K
R319 220
E309 4.7/25
R316 22K
R314 3.9K
R318 22K
E310 4.7/25
R320 220
R323 220
R321 10K
R322 10K
R324 220
E307 10/16
(IGN)
(REF +B)
C801 330P
R801 220K-1/8
D801 DSA3A4
D803 10E2
R804 3.3K-1/8
R840 10K-1/8
R841 82K
D808 MA151WK
QRB Socket (ET801)
CB302
CB301
CB802
CB801
(CHG-Lch)
(CHG-GND)
(CHG-Rch)
(BUS GND)
(BUS)
(P.GND)
(BAT)
(ACC)
(OUT-Lch)
(OUT-GND)
(OUT-Rch)
(OUT-INT)
(IN-INT)
(DIMMER)
(P.ANT)
(COM-Lch)
(REAR-L)
(FRONT-L)
(COM-Rch)
(REAR-R)
(FRONT-R)
(IN-PAU)
(OUT-REM)
(BUS-GND)
DIN Connector
Lch
Rch
Rear RCA Output Connector
AUDIO INTERRUPT OUT LEAD (□,■)
AUDIO INTERRUPT IN LEAD
DIMMER CONTROL LEAD
POWER ANTENNA LEAD
GROUND LEAD
LEFT REAR(+)
LEFT FRONT(+)
RIGHT REAR(+)
RIGHT FRONT(+)
Speaker Output Lead
LEFT(-)
RIGHT(-)
Speaker Output Lead (Common)
Power Supply Connector
(IN-PAUSE)
(OUT-REMOTE)
(MUTE)
(IN INT)
(IN PAU)
(OUT REM)
(P.ANT)
(OUT-INT)
(PWR-IC ON)
(BUS)
(ACC)
(BAT)
(DIMMER)
C309 0.1
E235 10/16
R247 10K
E301 1/50
C307 1000P
NC MUTE SW
POWER Vcc1
POWER Vcc2
PRE-AMP
FLAT AMP
E303 10/16
R303 470
E304 10/16
R304 470
PRE GND
PROTECTOR
LOAD DUMP
THERMAL SHUT DOWN
SHORT CIRCUIT
E236 10/16
E302 1/50
R248 10K
C308 1000P
STAND-BY SW
RIPPLE
GND
E305 220/10
IC301
TA8221H
POWER AMP
C303 0.15
R307 2.2-1/8
D301 RB100A
D303 RB100A
VR201-6 100
(Pre-Fad)
C305 0.15
R309 2.2-1/8
C306 0.15
R310 2.2-1/8
D302 RB100A
VR201-7 100
C304 0.15
R308 2.2-1/8
D304 RB100A
ZD801 HZS6.8NB1
R805 4.7K-1/8
E306 3300/16
D809 MA165TA
E801 1/50
SK
SK
DK
R124 22K
R122 220K
CONTROL
(Lch)
(Rch)
(MUTE)
(IN-INT)
(IN-PAU)
(OUT-REM)
(P.ANT)
(OUT-INT)

IC101

1	0V/3.7V	SK ON/OFF	11	0V	
2	4.8V/0.1V	DK ON/OFF	12	4.1V/4.1V	SK ON/OFF
3	0V		13	5.2V/4.3V	SK ON/OFF
4	6.8V/0V	SK ON/OFF	14	4V/4V	SK ON/OFF
5	4.1V/4.1V	SK ON/OFF	15	4.1V/4.1V	SK ON/OFF
6	4.1V/4.1V	SK ON/OFF	16	4.1V/4.1V	SK ON/OFF
7	8.3V/8.3V	SK ON/OFF	17	4V/4.1V	SK ON/OFF
8	4.1V/4.1V	SK ON/OFF	18	6.9V/0V	DK ON/OFF
9	5.2V/4.3V	SK ON/OFF	19	3.4V/3.4V	SK ON/OFF
10	0V		20	0V	

IC301

1	4.3V	
2	5.8V	
3	5.9V	
4	5.1V/0V	POW ON/OFF
5	0V	
6	5.9V	
7	5.8V	
8	5.9V	
9	14.2V	
10	14.2V	
11	6.9V	
12	7V	
13	0V	
14	0V	
15	6.9V	
16	7V	
17	14.2V	

IC302

1	4.5V
2	4.5V
3	4.4V
4	0V
5	4.4V
6	4.5V
7	4.5V
8	8.5V

IC304

1	4.5V
2	4.5V
3	4.5V
4	0V
5	4.5V
6	4.5V
7	4.5V
8	8.5V

	E	C	B	MODE
Q102	1.1	5.4V	1.7V	
Q103	0V	4.3V	0.6V	

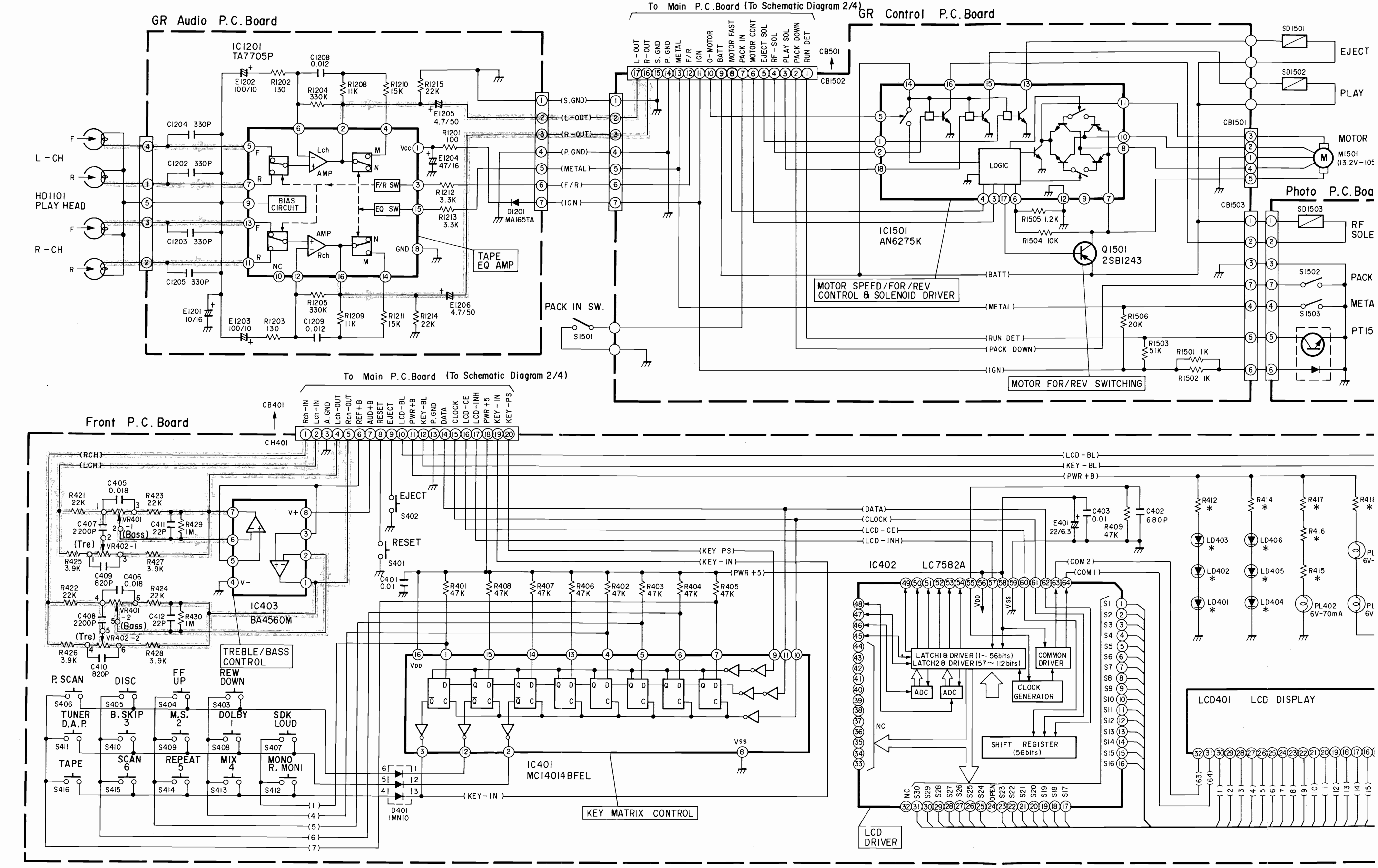
[Measuring Conditions]
- Power Supply Voltage : DC14.4V
- Measuring Meter : Digital Multimeter
- Measuring Point Reference : Between Ground
- Measuring Conditions : No Signal Input
  Tape : Blank
  FM : 98.1MHz
  LW : 216kHz
  MW : 999kHz

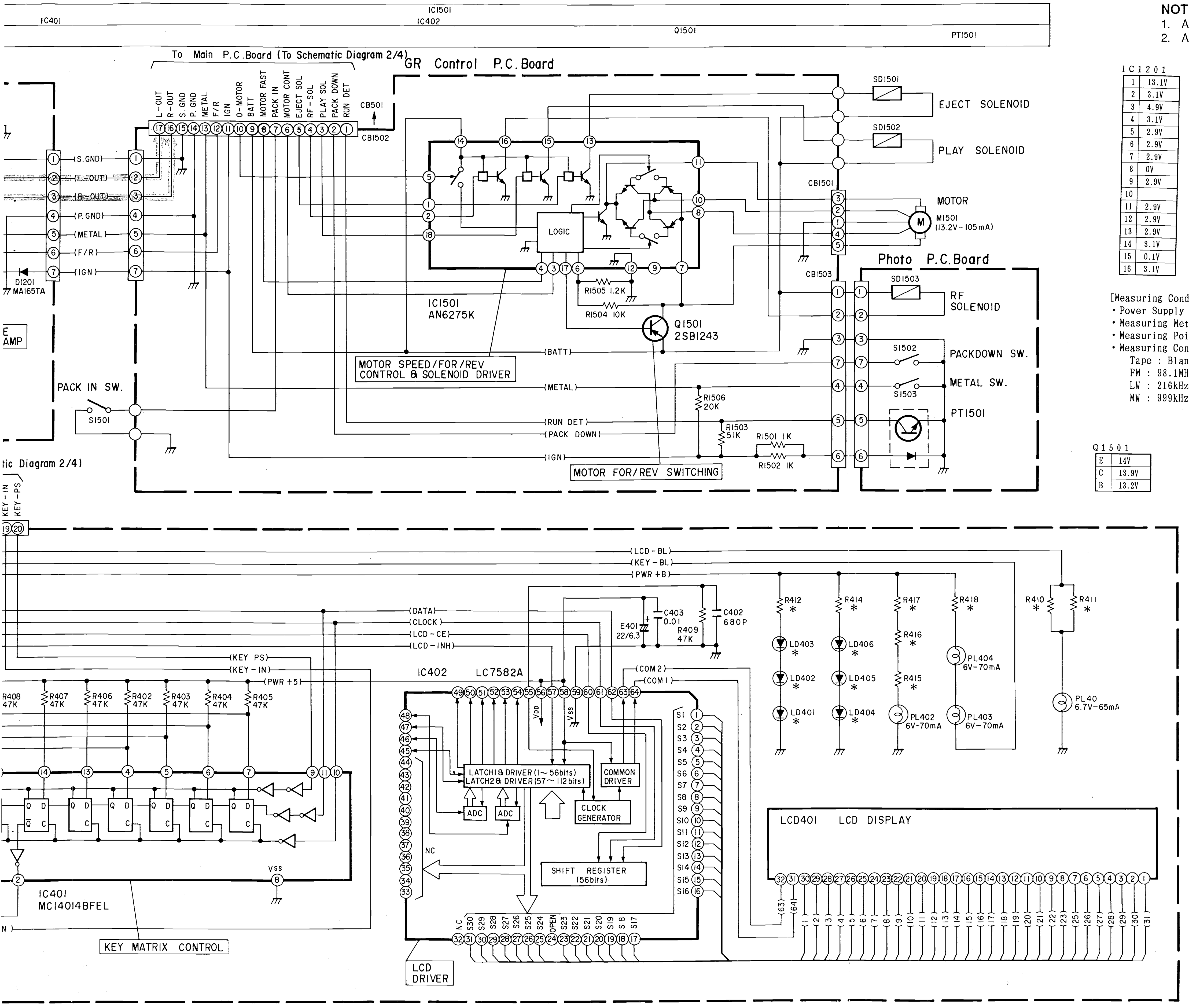
NOTE :
□ : 7516M model only
■ : 7516MM model only
Others : Common

NOTES:
1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. $P = \frac{1}{1,000,000}$

Schematic Diagram (4/4)

IC	IC1201 IC403	IC401	IC1501 IC402	
Transistor (Q) (PT)			Q1501	PT1501


1
2
3
4
5
GR Audio P.C.Board
IC1201
TA7705P
E1202 100/10
R1202 130
C1208 0.012
R1204 330K
R1208 11K
R1210 15K
R1215 22K
E1205 4.7/50
R1201 100
E1204 47/16
C1204 330P
C1202 330P
C1203 330P
C1205 330P
L-CH
R-CH
F
R
HD1101
PLAY HEAD
Lch
AMP
Rch
M
N
F/R SW
EQ SW
BIAS CIRCUIT
Vcc
GND
NC
R1212 3.3K
R1213 3.3K
D1201 MA165TA
TAPE EQ AMP
E1201 10/16
E1203 100/10
R1203 130
C1209 0.012
R1205 330K
R1209 11K
R1211 15K
R1214 22K
E1206 4.7/50
S.GND
L-OUT
R-OUT
P.GND
METAL
F/R
IGN
To Main P.C.Board (To Schematic Diagram 2/4)
L-OUT
R-OUT
S.GND
P.GND
METAL
F/R
IGN
O-MOTOR
BATT
MOTOR FAST
PACK IN
MOTOR CONT
EJECT SOL
RF-SOL
PLAY SOL
PACK DOWN
RUN DET
CB501
CB1502
PACK IN SW.
S1501
GR Control P.C.Board
SD1501
EJECT
SD1502
PLAY
CB1501
MOTOR
M1501 (13.2V-105
LOGIC
IC1501
AN6275K
R1505 1.2K
R1504 10K
Q1501
2SB1243
MOTOR SPEED/FOR/REV CONTROL & SOLENOID DRIVER
BATT
METAL
RUN DET
PACK DOWN
IGN
R1506 20K
R1503 51K
R1501 1K
R1502 1K
MOTOR FOR/REV SWITCHING
CB1503
Photo P.C.Boa
SD1503
RF SOLE
S1502
PACK
S1503
META
PT15
To Main P.C.Board (To Schematic Diagram 2/4)
CB401
CH401
Rch-IN
Lch-IN
A.GND
Lch-OUT
Rch-OUT
REF+B
AUD+B
RESET
EJECT
LCD-BL
PWR+B
KEY-BL
P.GND
DATA
CLOCK
LCD-CE
LCD-INH
PWR+5
KEY-IN
KEY-PS
Front P.C.Board
RCH
LCH
C405 0.018
R421 22K
R423 22K
VR401-1 (Bass)
C407 2200P
C411 22P
R429 1M
(Tre) VR402-1
R425 3.9K
R427 3.9K
C409 820P
C406 0.018
R422 22K
R424 22K
C408 2200P
VR401-2 (Bass)
C412 22P
R430 1M
(Tre) VR402-2
R426 3.9K
R428 3.9K
C410 820P
V+
V-
IC403
BA4560M
TREBLE/BASS CONTROL
EJECT
S402
RESET
S401
C401 0.01
P.SCAN
S406
DISC
S405
FF UP
S404
REW DOWN
S403
TUNER D.A.P.
S411
B.SKIP 3
S410
M.S. 2
S409
DOLBY 1
S408
SDK LOUD
S407
TAPE
S416
SCAN 6
S415
REPEAT 5
S414
MIX 4
S413
MONO R.MONI
S412
D401 IMN10
KEY-PS
KEY-IN
PWR+5
R401 47K
R408 47K
R407 47K
R406 47K
R402 47K
R403 47K
R404 47K
R405 47K
VDD
VSS
IC401
MC14014BFEL
KEY MATRIX CONTROL
KEY-IN
LCD-BL
KEY-BL
PWR+B
DATA
CLOCK
LCD-CE
LCD-INH
C403 0.01
E401 22/6.3
R409 47K
C402 680P
IC402 LC7582A
COM2
COM1
LATCH1 & DRIVER (1~56bits)
LATCH2 & DRIVER (57~112bits)
COMMON DRIVER
ADC
ADC
CLOCK GENERATOR
SHIFT REGISTER (56bits)
NC
LCD DRIVER
LCD401 LCD DISPLAY
R412 *
R414 *
R417 *
R416 *
R415 *
LD403 *
LD402 *
LD401 *
LD406 *
LD405 *
LD404 *
PL402 6V-70mA
A
B
C
D
E
F
G
H


IC401
IC1501
IC402
Q1501
PT1501
To Main P.C.Board (To Schematic Diagram 2/4)
GR Control P.C.Board
L-OUT
R-OUT
S.GND
P.GND
METAL
F/R
IGN
O-MOTOR
BATT
MOTOR FAST
PACK IN
MOTOR CONT
EJECT SOL
RF-SOL
PLAY SOL
PACK DOWN
RUN DET
CB501
CB1502
SD1501
EJECT SOLENOID
SD1502
PLAY SOLENOID
CB1501
MOTOR
M1501
(13.2V−105mA)
LOGIC
(S.GND)
(L-OUT)
(R-OUT)
(P.GND)
(METAL)
(F/R)
(IGN)
D1201
MA165TA
E
AMP
PACK IN SW.
S1501
R1505 1.2K
R1504 10K
IC1501
AN6275K
Q1501
2SB1243
CB1503
Photo P.C.Board
SD1503
RF SOLENOID
S1502
PACKDOWN SW.
S1503
METAL SW.
PT1501
R1506
20K
R1503
51K
R1501 1K
R1502 1K
(BATT)
(METAL)
(RUN DET)
(PACK DOWN)
(IGN)
MOTOR SPEED/FOR/REV CONTROL & SOLENOID DRIVER
MOTOR FOR/REV SWITCHING
tic Diagram 2/4)
KEY-IN
KEY-PS
(LCD-BL)
(KEY-BL)
(PWR+B)
(DATA)
(CLOCK)
(LCD-CE)
(LCD-INH)
(KEY PS)
(KEY-IN)
(PWR+5)
(COM2)
(COM1)
C403
0.01
E401
22/6.3
R409
47K
C402
680P
R412
R414
R417
R418
R410
R411
R416
R415
LD403
LD406
LD402
LD405
LD401
LD404
PL404
6V−70mA
PL402
6V−70mA
PL403
6V−70mA
PL401
6.7V−65mA
R408
47K
R407
47K
R406
47K
R402
47K
R403
47K
R404
47K
R405
47K
IC402 LC7582A
VDD
VSS
LATCH1 & DRIVER (1∼56bits)
LATCH2 & DRIVER (57∼112bits)
COMMON DRIVER
ADC
ADC
CLOCK GENERATOR
SHIFT REGISTER (56bits)
NC
OPEN
LCD401 LCD DISPLAY
IC401
MC14014BFEL
VSS
KEY MATRIX CONTROL
LCD DRIVER

NOTES:

1. All resistance values are in ohms. K = 1,000
2. All capacitance values are in microfarads. P = $\frac{1}{1,000,000}$

IC1201

1	13.1V
2	3.1V
3	4.9V
4	3.1V
5	2.9V
6	2.9V
7	2.9V
8	0V
9	2.9V
10	
11	2.9V
12	2.9V
13	2.9V
14	3.1V
15	0.1V
16	3.1V

IC1501

1	0V	10	13.9V
2	0V	11	8.1V
3	5.1V	12	0V
4	0V	13	14V
5	5.1V	14	14V
6	0.5V	15	0.2V
7	13.9V	16	14V
8	8.2V	17	13.2V
9	NC	18	5.1V

[Measuring Conditions]
- Power Supply Voltage : DC14.4V
- Measuring Meter : Digital Multimeter
- Measuring Point Reference : Between Ground
- Measuring Conditions : No Signal Input

  Tape : Blank
  FM : 98.1MHz
  LW : 216kHz
  MW : 999kHz

Q1501

E	14V
C	13.9V
B	13.2V

Difference List (* Mark)

Model / Ref.	7516M	7516MM	7516L
LD401 ∼406	MBG4868K	MAA4868K	MBG4868K
R410.411	62-1/4	68-1/4	62-1/4
R412.414	470-1/4	820-1/4	470-1/4
R415∼417	47-1/4	68-1/4	47-1/4
R418	47-1/4	120-1/4	47-1/4

IC401

1	5V
2	PULSE
3	PULSE
4	5V
5	5V
6	5V
7	5V
8	0V
9	PULSE
10	PULSE
11	PULSE
12	PULSE
13	5V
14	5V
15	5V
16	5V

IC403

1	4.4V
2	4.5V
3	4.5V
4	0V
5	4.5V
6	4.4V
7	4.5V
8	8.5V

IC402

1	PULSE	17	PULSE	33	PULSE	49	PULSE
2	PULSE	18	PULSE	34	PULSE	50	PULSE
3	PULSE	19	PULSE	35	PULSE	51	PULSE
4	PULSE	20	PULSE	36	PULSE	52	PULSE
5	PULSE	21	PULSE	37	PULSE	53	PULSE
6	PULSE	22	PULSE	38	PULSE	54	PULSE
7	PULSE	23	PULSE	39	PULSE	55	3.9V
8	PULSE	24	5V	40	PULSE	56	5V
9	PULSE	25	PULSE	41	PULSE	57	5.1V
10	PULSE	26	PULSE	42	PULSE	58	5V
11	PULSE	27	PULSE	43	PULSE	59	0V
12	PULSE	28	PULSE	44	PULSE	60	1.9V
13	PULSE	29	PULSE	45	PULSE	61	0.1V
14	PULSE	30	PULSE	46	PULSE	62	2.7V
15	PULSE	31	PULSE	47	PULSE	63	2.5V
16	PULSE	32	PULSE	48	PULSE	64	2.5V

Electrical Parts LIst

Resistor : Carbon resistors under 1/4 watts are not mentioned in the parts list, please confirm them by schematic diagram.
Capacitor : μF = microfarads, pF = picofarads

Abbreviations

RES. =	Resistor	CAP. =	Capacitor
C.F. =	Carbon Film	ELY. =	Electrolytic
M.F. =	Metal Film	CER. =	Ceramic
M.O. =	Metal Oxide Film	MYL. =	Mylar
M.P. =	Metal Plate	TAN. =	Tantalum
TR. =	Transistor	POLY. =	Polystyrol
TRANS. =	Transformer	PP. =	Polypropylene
CP. =	Chip	PLT. =	Polyethylene
		PF. =	Polyester Film

Main P. C. Board

IC's

	Symbol No.	Part No.	Description
	IC001	51T96030F01	μPC1675G
	IC051	51T94316F02	AN7465S
□	IC101	51T15655W02	TDA1579T
■	IC101	51T15655W02	TDA1579T
	IC201	51T67915F01	M51143AL
	IC202	51T16466W02	CXA1163M
	IC203	51T40941U03	MC14066BFL1
	IC301	51T25614W01	TA8221H
	IC302	51T92001F01	BA4560F
	IC304	51T92001F01	BA4560F
	IC501	51T35044W01	35044W01
	IC502	51T35246W01	35246W01
	IC503	51T95014F13	S-8052HNM-CR
	IC801	51T15268W03	L78LR05DFA
	IC802	51T90890F01	M5236ML
	IC803	51T92001F01	BA4560F

Transistors

	Symbol No.	Part No.	Description
	Q002	48T90181F05	2SD1993
	Q003	48T90181F05	2SD1993
	Q004	48T62967F03	CP., DTC124K
	Q005	48T62967F03	CP., DTC124K
	Q006	48T62967F03	CP., DTC124K
	Q007	48T84234F03	2SB1238
	Q008	48T62967F03	CP., DTC124K
	Q009	48T83415F03	2SD1858
▲	Q010	48T73888F12	CP., FMC2
	Q012	48T84234F03	2SB1238
	Q013	48T62967F09	CP., DTC114TK
	Q014	48T62966F03	CP., DTA124
	Q015	48T62967F03	CP., DTC124K
	Q051	48T64221F10	UN2110
□	Q102	48T63417F01	CP., 2SC2412K
■	Q102	48T63417F01	CP., 2SC2412K
□	Q103	48T63417F01	CP., 2SC2412K
■	Q103	48T63417F01	CP., 2SC2412K
	Q202	48T62967F22	CP., DTC144TK
	Q203	48T62967F03	CP., DTC124K
	Q205	48T73888F08	CP., FMG1
	Q207	48T73888F08	CP., FMG1
	Q209	48T62967F36	DTC323TK
	Q210	48T62967F36	DTC323TK
□	Q211	48T62967F36	DTC323TK
■	Q211	48T62967F36	DTC323TK
□	Q212	48T62967F36	DTC323TK
■	Q212	48T62967F36	DTC323TK
	Q213	48T62967F03	CP., DTC124K
	Q214	48T73888F12	CP., FMC2
□	Q216	48T73888F08	CP., FMG1
■	Q216	48T73888F08	CP., FMG1
	Q217	48T62967F33	CP., DTC343T
	Q218	48T62967F33	CP., DTC343T
□	Q219	48T62967F36	DTC323TK
■	Q219	48T62967F36	DTC323TK
□	Q220	48T62967F36	DTC323TK
■	Q220	48T62967F36	DTC323TK
	Q305	48T62967F33	CP., DTC343T
	Q306	48T62967F33	CP., DTC343T
	Q501	48T62967F03	CP., DTC124K
	Q502	48T62966F03	CP., DTA124
	Q503	48T63417F01	CP., 2SC2412K
	Q504	48T73888F12	CP., FMC2
	Q505	48T16335W03	CP., IMD2
	Q801	48T62967F06	CP., DTC114YK
	Q803	48T73888F12	CP., FMC2
	Q805	48T73888F12	CP., FMC2
	Q807	48T84234F03	2SB1238
	Q808	48T62967F01	CP., DTC143K
	Q809	48T63420F01	CP., 2SA1037K
	Q810	48T62967F03	CP., DTC124K
	Q811	48T84366F01	2SB1243
	Q812	48T62967F03	CP., DTC124K
	Q813	48T84366F01	2SB1243
	Q814	48T62967F03	CP., DTC124K
□	Q815	48T73888F12	CP., FMC2
■	Q815	48T73888F12	CP., FMC2
□	Q817	48T62967F03	CP., DTC124K
■	Q817	48T62967F03	CP., DTC124K
	Q818	48T83617F04	2SD1863
	Q819	48T84234F03	2SB1238
	Q820	48T62967F03	CP., DTC124K
	Q821	48T84234F03	2SB1238

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Symbol No.	Part No.	Description
Q822	48T73888F08	CP., FMG1
Q824	48T94853F02	CP., DTD143EK
Q825	48T62967F03	CP., DTC124K
Q826	48T84234F03	2SB1238
Diodes		
D001	48T52446F01	CP., MA151WK
D003	48T52446F01	CP., MA151WK
D004	48T52446F01	CP., MA151WK
D204	48T16313W01	1SR139
D207	48T52446F01	CP., MA151WK
D208	48T44813F01	MA165TA
☐ D209	48T16617W01	1SS332
■ D209	48T16617W01	1SS332
☐ D210	48T16617W01	1SS332
■ D210	48T16617W01	1SS332
D301	48T25664W01	RB100A
D302	48T25664W01	RB100A
D303	48T25664W01	RB100A
D304	48T25664W01	RB100A
D501	48T44813F01	MA165TA
D502	48T44813F01	MA165TA
D503	48T16617W01	1SS332
D801	48T68580F02	DSA3A4
D803	48C40235G02	10E2
D804	48T64134F01	CP., DA204K
D805	48T64134F01	CP., DA204K
D806	48T70933F01	1SS136
D807	48T64134F01	CP., DA204K
D808	48T52446F01	CP., MA151WK
D809	48T44813F01	MA165TA
D812	48T44813F01	MA165TA
D815	48T44813F01	MA165TA
ZD001	48T83128F25	Zener, HZS9C1L
ZD002	48T90517F26	Zener, HZS5.6NB1
ZD003	48T83128F25	Zener, HZS9C1L
ZD004	48T90517F26	Zener, HZS5.6NB1
ZD201	48T90517F26	Zener, HZS5.6NB1
ZD202	48T91071F06	Zener, HZS3CLL
ZD501	48T90517F26	Zener, HZS5.6NB1
ZD605	48T90517F26	Zener, HZS5.6NB1
ZD801	48T90517F32	Zener, HZS6.8NB1
ZD802	48T83128F28	Zener, HZS11A1L

Symbol No.	Part No.	Description	
Crystals			
X501	91T25773W23	4.5MHz	
X502	91T15285W01	CER., Lock 4.19MHz	
Coils			
☐ L101	24T84175F01	SDK 57KHz	
■ L101	24T84175F01	SDK 57KHz	
Capacitors			
C001	08S65128F69	CP.,	0.01μF
E001	23T94181F40	ELY.,	220μF / 10V
C002	08S65128F69	CP.,	0.01μF
E002	23S61523F27	ELY.,	0.33μF / 50V
C003	08S65128F73	CP.,	0.033μF
E003	23S61523F09	ELY.,	22μF / 10V
C004	08S65128F73	CP.,	0.033μF
E004	23S92017F01	ELY.,	220μF / 10V
C005	08S65128F73	CP.,	0.033μF
E005	23S61523F29	ELY.,	1μF / 50V
C007	08S65128F35	CP.,	100pF
C008	08S65128F69	CP.,	0.01μF
C009	08S65128F57	CP.,	1000pF
C010	08T15399W03	CP.,	0.047μF
C011	08S65128F57	CP.,	1000pF
C012	08S65128F23	CP.,	33pF
☐ C013	08T90316F21	TF,	0.022μF
■ C013	08T90316F21	TF,	0.022μF
▲ C013	08T90316F26	TF,	0.056μF
☐ C014	08S65128F77	CP.,	0.018μF
■ C014	08S65128F77	CP.,	0.018μF
▲ C014	08S65128F78	CP.,	0.022μF
C017	08S65128F69	CP.,	0.01μF
C018	23T82372F19	ELY., (B.P.)	2.2μF / 50V
☐ C019	08S65128F79	CP.,	0.027μF
■ C019	08S65128F79	CP.,	0.027μF
▲ C019	08S65128F78	CP.,	0.022μF
☐ C020	08S65128F79	CP.,	0.027μF
■ C020	08S65128F79	CP.,	0.027μF
▲ C020	08S65128F78	CP.,	0.022μF

Notes : ☐ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Symbol No.		Part No.	Description	
	C021	08S65128F78	CP.,	0.022μF
	C022	08S65128F78	CP.,	0.022μF
	E052	23S61523F09	ELY.,	22μF / 10V
	E053	23S61523F25	ELY.,	0.1μF / 50V
	C054	08S65128F69	CP.,	0.01μF
	E054	23S61523F25	ELY.,	0.1μF / 50V
	E055	23S61523F26	ELY.,	0.22μF / 50V
	C056	08S65128F67	CP.,	6800pF
	E056	23S61523F29	ELY.,	1μF / 50V
	C057	08T44481F03	PP.,	390pF
	E057	23S61523F25	ELY.,	0.1μF / 50V
	C058	08T15399W03	CP.,	0.047μF
	E058	23S61523F17	ELY.,	4.7μF / 25V
	C059	08T15399W03	CP.,	0.047μF
	C060	08S65128F63	CP.,	3300pF
	C061	08S65128F69	CP.,	0.01μF
	C062	08S65128F51	CP.,	470pF
	C063	08S65128F69	CP.,	0.01μF
□	C101	08S65128F59	CP.,	1500pF
■	C101	08S65128F59	CP.,	1500pF
□	C102	08T90316F23	TF,	0.033μF
■	C102	08T90316F23	TF,	0.033μF
□	E102	23S61523F17	ELY.,	4.7μF / 25V
■	E102	23S61523F17	ELY.,	4.7μF / 25V
□	C103	08T90316F25	TF,	0.047μF
■	C103	08T90316F25	TF,	0.047μF
□	C104	08T90316F25	TF,	0.047μF
■	C104	08T90316F25	TF,	0.047μF
□	E104	23S61523F29	ELY.,	1μF / 50V
■	E104	23S61523F29	ELY.,	1μF / 50V
□	C105	08T90316F29	TF,	0.1μF
■	C105	08T90316F29	TF,	0.1μF
□	E105	23S61523F29	ELY.,	1μF / 50V
■	E105	23S61523F29	ELY.,	1μF / 50V
□	C106	08T90316F27	TF,	0.068μF
■	C106	08T90316F27	TF,	0.068μF
□	E106	23S61523F25	ELY.,	0.1μF / 50V
■	E106	23S61523F25	ELY.,	0.1μF / 50V
□	C107	08T90316F27	TF,	0.068μF
■	C107	08T90316F27	TF,	0.068μF
□	E107	23S61523F17	ELY.,	4.7μF / 25V
■	E107	23S61523F17	ELY.,	4.7μF / 25V
□	C108	08T90316F28	TF,	0.082μF
■	C108	08T90316F28	TF,	0.082μF
□	C109	08T90316F25	TF,	0.047μF
■	C109	08T90316F25	TF,	0.047μF
	C201	08S65128F78	CP.,	0.022μF
	C202	08S65128F78	CP.,	0.022μF
	E202	23S61523F25	ELY.,	0.1μF / 50V
	E203	23S61523F25	ELY.,	0.1μF / 50V
	C204	08S65128F31	CP.,	68pF
	E204	23S61523F29	ELY.,	1μF / 50V

Symbol No.		Part No.	Description	
□	C205	08T90316F23	TF,	0.033μF
■	C205	08T90316F23	TF,	0.033μF
▲	C205	08T90316F29	TF,	0.1μF
	E205	23S61523F12	ELY.,	10μF / 16V
□	C206	08T90316F23	TF,	0.033μF
■	C206	08T90316F23	TF,	0.033μF
▲	C206	08T90316F29	TF,	0.1μF
	E206	23S61523F25	ELY.,	0.1μF / 50V
□	C207	08S65128F69	CP.,	0.01μF
■	C207	08S65128F69	CP.,	0.01μF
	E207	23S61523F29	ELY.,	1μF / 50V
	E208	23S61523F29	ELY.,	1μF / 50V
	E209	23S61523F29	ELY.,	1μF / 50V
	E210	23S61523F29	ELY.,	1μF / 50V
	E211	23S61523F34	ELY.,	100μF / 10V
	E212	23S61523F34	ELY.,	100μF / 10V
	E214	23S61523F05	ELY.,	22μF / 6.3V
	E215	23S61523F35	ELY.,	0.68μF / 50V
	E216	23S61523F35	ELY.,	0.68μF / 50V
	E219	23S61523F29	ELY.,	1μF / 50V
	E220	23S61523F29	ELY.,	1μF / 50V
	E221	23S61523F17	ELY.,	4.7μF / 25V
	E222	23S61523F17	ELY.,	4.7μF / 25V
	E225	23S61523F17	ELY.,	4.7μF / 25V
	E226	23S61523F17	ELY.,	4.7μF / 25V
	E229	23S61523F12	ELY.,	10μF / 16V
	E230	23S61523F15	ELY.,	47μF / 16V
	E233	23S61523F12	ELY.,	10μF / 16V
	E235	23S61523F12	ELY.,	10μF / 16V
	E236	23S61523F12	ELY.,	10μF / 16V
	E301	23S61523F29	ELY.,	1μF / 50V
	E302	23S61523F29	ELY.,	1μF / 50V
	C303	08T90316F31	TF,	0.15μF
	E303	23T25057W05	ELY.,	10μF / 16V
	C304	08T90316F31	TF,	0.15μF
	E304	23T25057W05	ELY.,	10μF / 16V
	C305	08T90316F31	TF,	0.15μF
	E305	23T16360W20	ELY.,	220μF / 10V
	C306	08T90316F31	TF,	0.15μF
	E306	23T16360W41	ELY.,	3300μF / 16V
	C307	08S65128F57	CP.,	1000pF
	E307	23S61523F12	ELY.,	10μF / 16V
	C308	08S65128F57	CP.,	1000pF
	E308	23S61523F12	ELY.,	10μF / 16V
	C309	08S65128F76	CP.,	0.1μF
	E309	23S61523F17	ELY.,	4.7μF / 25V
	E310	23S61523F17	ELY.,	4.7μF / 25V
	C311	08S65128F19	CP.,	22pF
	C312	08S65128F19	CP.,	22pF
	E315	23S61523F12	ELY.,	10μF / 16V
	E316	23S61523F12	ELY.,	10μF / 16V
	E317	23S61523F12	ELY.,	10μF / 16V

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Symbol No.		Part No.	Description
	E318	23S61523F12	ELY., 10μF / 16V
	C501	08S65128F19	CP., 22pF
	E501	23S61523F34	ELY., 100μF / 10V
	C502	08S65128F19	CP., 22pF
	E502	23S61523F12	ELY., 10μF / 16V
	C503	08S65128F35	CP., 100pF
	E503	23S61523F34	ELY., 100μF / 10V
	C504	08S65128F35	CP., 100pF
	E504	23S61523F34	ELY., 100μF / 10V
	C505	08S65128F35	CP., 100pF
	C506	08S65128F35	CP., 100pF
	C507	08S65128F35	CP., 100pF
	C509	08S65128F51	CP., 470pF
	C510	08S65128F69	CP., 0.01μF
	C511	08S65128F69	CP., 0.01μF
	C519	08T74293F61	CER., 0.01μF
	C520	08S65128F69	CP., 0.01μF
	C801	08S65128F47	CP., 330pF
	E801	23S61523F29	ELY., 1μF / 50V
	C802	08S65128F69	CP., 0.01μF
	E802	23S61523F28	ELY., 0.47μF / 50V
	E803	23S61523F25	ELY., 0.1μF / 50V
	E804	23S61523F34	ELY., 100μF / 10V
	E805	23S61523F34	ELY., 100μF / 10V
	E806	23S61523F12	ELY., 10μF / 16V
	E807	23S61523F12	ELY., 10μF / 16V
□	E808	23S61523F15	ELY., 47μF / 16V
■	E808	23S61523F15	ELY., 47μF / 16V
	E809	23S61523F12	ELY., 10μF / 16V
	E810	23S61523F13	ELY., 22μF / 16V
	E811	23S61523F12	ELY., 10μF / 16V

Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)

Symbol No.		Part No.	Description
	R001	06S64995F53	1K ohm
	R002	06T70072F41	330 ohm 1/4W
	R003	06S64995F65	3.3K ohm
	R004	06S64995F53	1K ohm
	R005	06S64995F65	3.3K ohm
	R006	06S64995F53	1K ohm
	R007	06S64995F05	10 ohm
	R008	06S64995F75	8.2K ohm
	R009	06S64995F71	5.6K ohm
	R011	06S64995F37	220 ohm
	R012	06S64995F29	100 ohm
	R013	06S64995F61	2.2K ohm
	R014	06S64995F61	2.2K ohm
	R015	06S64995F61	2.2K ohm
	R016	06S64995F37	220 ohm
□	R017	06S64995F89	33K ohm
■	R017	06S64995F89	33K ohm
▲	R017	06S64995F83	18K ohm
	R018	06S64995F85	22K ohm
	R019	06S64995F53	1K ohm
	R020	06S64995F77	10K ohm
	R021	06S64995F53	1K ohm
□	R022	06S64996F10	220K ohm
■	R022	06S64996F10	220K ohm
▲	R022	06S64996F01	91K ohm
□	R023	06S64995F67	3.9K ohm
■	R023	06S64995F67	3.9K ohm
▲	R023	06S64995F75	8.2K ohm
□	R024	06S64995F67	3.9K ohm
■	R024	06S64995F67	3.9K ohm
▲	R024	06S64995F75	8.2K ohm
	R025	06S64995F53	1K ohm
	R026	06S64996F02	100K ohm
	R027	06S64995F61	2.2K ohm
	R028	06S64995F61	2.2K ohm
	R029	06S53330F65	3.3K ohm 1/8W
	R030	06S53330F65	3.3K ohm 1/8W
	R031	06S64995F77	10K ohm
	R032	06T70072F53	1K ohm 1/4W
□	R033	06T70072F53	1K ohm 1/4W
■	R033	06T70072F53	1K ohm 1/4W
▲	R034	06T70072F53	1K ohm 1/4W
	R035	06S64995F93	47K ohm
	R036	06S64995F93	47K ohm
	R037	06S64995F77	10K ohm
	R038	06S64995F77	10K ohm
	R039	06S64995F93	47K ohm
	R040	06S64995F85	22K ohm
	R050	06S64996F18	470K ohm
	R051	06S64995F05	10 ohm
	R052	06S64995F79	12K ohm
	R053	06S64995F65	3.3K ohm
	R054	06S64995F57	1.5K ohm
	R055	06S64996F26	1M ohm
	R056	06S64995F69	4.7K ohm
	R057	06S64995F65	3.3K ohm
	R058	06S64995F81	15K ohm
	R059	06S64995F93	47K ohm
	R060	06S64996F02	100K ohm
	R072	06S64995F75	8.2K ohm
	R075	06S64995F95	56K ohm
	R099	06S64995F53	1K ohm
□	R103	06S64995F99	82K ohm
■	R103	06S64995F99	82K ohm
□	R104	06S64995F85	22K ohm
■	R104	06S64995F85	22K ohm
□	R105	06S64995F63	2.7K ohm

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Symbol No.		Part No.	Description
■	R105	06S64995F63	2.7K ohm
□	R106	06S64995F53	1K ohm
■	R106	06S64995F53	1K ohm
□	R107	06S64995F77	10K ohm
■	R107	06S64995F77	10K ohm
□	R108	06S64996F22	680K ohm
■	R108	06S64996F22	680K ohm
□	R109	06S64996F04	120K ohm
■	R109	06S64996F04	120K ohm
□	R110	06S64995F97	68K ohm
■	R110	06S64995F97	68K ohm
□	R111	06S64995F77	10K ohm
■	R111	06S64995F77	10K ohm
□	R112	06S64996F10	220K ohm
■	R112	06S64996F10	220K ohm
□	R113	06S64995F91	39K ohm
■	R113	06S64995F91	39K ohm
□	R114	06S64995F77	10K ohm
■	R114	06S64995F77	10K ohm
□	R115	06S64995F97	68K ohm
■	R115	06S64995F97	68K ohm
□	R116	06S64995F97	68K ohm
■	R116	06S64995F97	68K ohm
□	R117	06S64995F93	47K ohm
■	R117	06S64995F93	47K ohm
□	R118	06S64995F69	4.7K ohm
■	R118	06S64995F69	4.7K ohm
□	R119	06S64996F02	100K ohm
■	R119	06S64996F02	100K ohm
□	R120	06S64996F22	680K ohm
■	R120	06S64996F22	680K ohm
□	R121	06S64995F43	390 ohm
■	R121	06S64995F43	390 ohm
□	R122	06S64996F10	220K ohm
■	R122	06S64996F10	220K ohm
□	R123	06S64995F69	4.7K ohm
■	R123	06S64995F69	4.7K ohm
□	R124	06S64995F85	22K ohm
■	R124	06S64995F85	22K ohm
	R201	06S64995F77	10K ohm
	R202	06S64995F77	10K ohm
	R203	06S64995F45	470 ohm
	R204	06S64995F45	470 ohm
	R205	06S64996F18	470K ohm
	R206	06S64996F26	1M ohm
	R207	06S64996F20	560K ohm
	R208	06S64996F01	91K ohm
	R209	06S64995F85	22K ohm
	R210	06T70072F53	1K ohm 1/4W
	R211	06S64995F69	4.7K ohm
	R212	06S64995F61	2.2K ohm
	R213	06S64995F61	2.2K ohm

Symbol No.		Part No.	Description
	R214	06S64995F92	43K ohm
	R217	06S64995F61	2.2K ohm
	R218	06S64995F85	22K ohm
□	R219	06S64995F71	5.6K ohm
■	R219	06S64995F71	5.6K ohm
▲	R219	06S64995F59	1.8K ohm
□	R220	06S64995F71	5.6K ohm
■	R220	06S64995F71	5.6K ohm
▲	R220	06S64995F59	1.8K ohm
	R221	06S53330F37	220 ohm 1/8W
	R222	06S53330F37	220 ohm 1/8W
□	R229	06S64995F49	680 ohm
■	R229	06S64995F49	680 ohm
	R230	06S64995F85	22K ohm
□	R233	06S64996F02	100K ohm
■	R233	06S64996F02	100K ohm
□	R234	06S64996F02	100K ohm
■	R234	06S64996F02	100K ohm
	R244	06S64995F77	10K ohm
	R245	06S64996F02	100K ohm
	R246	06S64995F53	1K ohm
	R247	06S64995F77	10K ohm
	R248	06S64995F77	10K ohm
□	R249	06S64995F29	100 ohm
■	R249	06S64995F29	100 ohm
□	R250	06S64995F29	100 ohm
■	R250	06S64995F29	100 ohm
	R303	06S64995F45	470 ohm
	R304	06S64995F45	470 ohm
	R307	06S53331F40	2.2 ohm 1/8W
	R308	06S53331F40	2.2 ohm 1/8W
	R309	06S53331F40	2.2 ohm 1/8W
	R310	06S53331F40	2.2 ohm 1/8W
	R313	06S64995F67	3.9K ohm
	R314	06S64995F67	3.9K ohm
	R315	06S64995F85	22K ohm
	R316	06S64995F85	22K ohm
	R317	06S64995F85	22K ohm
	R318	06S64995F85	22K ohm
	R319	06S64995F37	220 ohm
	R320	06S64995F37	220 ohm
	R321	06S64995F77	10K ohm
	R322	06S64995F77	10K ohm
	R323	06S64995F37	220 ohm
	R324	06S64995F37	220 ohm
	R335	06S64995F77	10K ohm
	R336	06S64995F77	10K ohm
	R337	06S64995F77	10K ohm
	R338	06S64995F77	10K ohm
	R339	06S64995F77	10K ohm
	R340	06S64995F77	10K ohm
	R341	06S64995F77	10K ohm

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

	Symbol No.	Part No.	Description
	R342	06S64995F77	10K ohm
	R501	06S64995F69	4.7K ohm
	R503	06S64995F93	47K ohm
	R504	06S64995F93	47K ohm
	R505	06S64995F69	4.7K ohm
	R506	06S64995F69	4.7K ohm
	R507	06S64995F93	47K ohm
	R508	06S64995F61	2.2K ohm
	R509	06S64995F93	47K ohm
	R510	06S64995F61	2.2K ohm
	R511	06S64995F93	47K ohm
	R512	06S64995F93	47K ohm
	R513	06S64995F93	47K ohm
	R514	06S64995F93	47K ohm
	R515	06S64995F93	47K ohm
	R517	06S64995F93	47K ohm
	R519	06S64995F77	10K ohm
	R520	06S64995F77	10K ohm
	R521	06S53330F85	22K ohm 1/8W
	R523	06S64995F85	22K ohm
	R524	06S64995F83	18K ohm
	R525	06S64995F77	10K ohm
	R527	06S64995F93	47K ohm
	R529	06S64996F02	100K ohm
	R530	06S64995F77	10K ohm
	R531	06S64996F02	100K ohm
	R532	06S64995F93	47K ohm
	R533	06S64995F93	47K ohm
	R535	06S64995F93	47K ohm
	R536	06S64995F93	47K ohm
	R537	06S64995F93	47K ohm
	R538	06S64995F93	47K ohm
	R539	06S64995F93	47K ohm
☐	R540	06S64995F93	47K ohm
■	R540	06S64995F93	47K ohm
	R542	06S64995F93	47K ohm
	R801	06S53331F10	220K ohm 1/8W
	R802	06S64995F69	4.7K ohm
	R803	06S64995F77	10K ohm
	R804	06S53330F65	3.3K ohm 1/8W
	R805	06S53330F69	4.7K ohm 1/8W
	R807	06S64995F77	10K ohm
	R808	06T70072F45	470 ohm 1/4W
	R809	06T70072F45	470 ohm 1/4W
	R810	06S64995F37	220 ohm
	R811	06S64995F81	15K ohm
	R812	06S64995F87	27K ohm
	R813	06S64995F69	4.7K ohm
	R814	06S64995F52	910 ohm
	R815	06S64995F53	1K ohm
	R816	06S64995F77	10K ohm
	R817	06S53330F77	10K ohm 1/8W

	Symbol No.	Part No.	Description
	R818	06S53330F61	2.2K ohm 1/8W
	R819	06T70072F04	8.2 ohm 1/4W
	R820	06T70072F04	8.2 ohm 1/4W
	R821	06S64995F77	10K ohm
	R822	06S53330F61	2.2K ohm 1/8W
	R823	06S64995F77	10K ohm
	R824	06S53330F61	2.2K ohm 1/8W
☐	R825	06S53330F61	2.2K ohm 1/8W
■	R825	06S53330F61	2.2K ohm 1/8W
☐	R826	06T70072F53	1K ohm 1/4W
■	R826	06T70072F53	1K ohm 1/4W
	R827	06T70072F53	1K ohm 1/4W
	R828	06S64995F77	10K ohm
	R829	06S53330F61	2.2K ohm 1/8W
	R830	06S64995F77	10K ohm
	R831	06S53330F61	2.2K ohm 1/8W
	R832	06T70072F19	39 ohm 1/4W
	R836	06T70072F53	1K ohm 1/4W
	R837	06S53330F77	10K ohm 1/8W
	R838	06S64995F61	2.2K ohm
	R839	06S64995F77	10K ohm
	R840	06S53330F77	10K ohm 1/8W
	R841	06S64995F99	82K ohm
	VR052	18T15432W11	Variable, 4.7K ohm
	VR053	18T25530W09	Variable, 2.2K ohm
☐	VR101	18T25530W02	Variable, 150 ohm
■	VR101	18T25530W02	Variable, 150 ohm
☐	VR201 S201 S202	18T16194W14	Volume, Control (VOL, BAL, FAD, DISC SEL / PROG / DX, POWER)
■	VR201 S201 S202	18T16194W14	Volume, Control (VOL, BAL, FAD, DISC SEL / PROG / DX, POWER)
▲	VR201 S201 S202	18T16194W01	Volume, Control (VOL, BAL, FAD, DISC SEL / PROG / DX, POWER)
☐	VR203	18T60065F13	Variable, 10K ohm
■	VR203	18T60065F13	Variable, 10K ohm
	VR209	18T25530W15	Variable, 22K ohm
	VR210	18T25530W15	Variable, 22K ohm

Notes : ☐ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Front P. C. Board

IC's

	Symbol No.	Part No.	Description
	IC401	51T16618W02	MC14014BFEL
	IC402	51T83905F01	LC7582A
	IC403	51T92001F01	BA4560F

Diode

	Symbol No.	Part No.	Description
	D401	48T94471F01	IMN10

LED's

	Symbol No.	Part No.	Description
□	LD401	48T15700W02	MBG4868K (GRN)
■	LD401	48T15700W01	MAA4868K (ORG)
▲	LD401	48T15700W02	MBG4868K (GRN)
□	LD402	48T15700W02	MBG4868K (GRN)
■	LD402	48T15700W01	MAA4868K (ORG)
▲	LD402	48T15700W02	MBG4868K (GRN)
□	LD403	48T15700W02	MBG4868K (GRN)
■	LD403	48T15700W01	MAA4868K (ORG)
▲	LD403	48T15700W02	MBG4868K (GRN)
□	LD404	48T15700W02	MBG4868K (GRN)
■	LD404	48T15700W01	MAA4868K (ORG)
▲	LD404	48T15700W02	MBG4868K (GRN)
□	LD405	48T15700W02	MBG4868K (GRN)
■	LD405	48T15700W01	MAA4868K (ORG)
▲	LD405	48T15700W02	MBG4868K (GRN)
□	LD406	48T15700W02	MBG4868K (GRN)
■	LD406	48T15700W01	MAA4868K (ORG)
▲	LD406	48T15700W02	MBG4868K (GRN)

Switches

	Symbol No.	Part No.	Description
	S401	40T10876W12	Tact, SKHLAJ (RESET)
	S402	40T10876W12	Tact, SKHLAJ (EJECT)
	S403	40T10876W12	Tact, SKHLAJ (REW / DN)
	S404	40T10876W12	Tact, SKHLAJ (FF / UP)
	S405	40T10876W12	Tact, SKHLAJ (DISK)
	S406	40T10876W12	Tact, SKHLAJ (P. SCAN)
	S407	40T10876W12	Tact, SKHLAJ (SDK / LOUD)
	S408	40T10876W12	Tact, SKHLAJ (M1 / DOLBY)
	S409	40T10876W12	Tact, SKHLAJ (M2 / M. S.)
	S410	40T10876W12	Tact, SKHLAJ (M3 / B. SKIP)
	S411	40T10876W12	Tact, SKHLAJ (TUNER · BAND)
	S412	40T10876W12	Tact, SKHLAJ (MONO / R. MONI)
	S413	40T10876W12	Tact, SKHLAJ (M4 / M.I.X.)
	S414	40T10876W12	Tact, SKHLAJ (M5 / REPEAT)
	S415	40T10876W12	Tact, SKHLAJ (M6 / SCAN)
	S416	40T10876W12	Tact, SKHLAJ (TAPE)

Lamps

	Symbol No.	Part No.	Description
	PL401	65T25230W01	Pilot, 6.7V-85mA
□	PL402	65T25170W06	6V-70mA
■	PL402	65T25170W13	6V-70mA
▲	PL402	65T25170W06	6V-70mA
□	PL403	65T25170W06	6V-70mA
■	PL403	65T25170W13	6V-70mA
▲	PL403	65T25170W06	6V-70mA
□	PL404	65T25170W06	6V-70mA
■	PL404	65T25170W13	6V-70mA
▲	PL404	65T25170W06	6V-70mA

Capacitors

	Symbol No.	Part No.	Description	
	C401	08S65128F69	CP.,	0.01μF
	E401	23T25191W07	ELY.,	22μF / 6.3V
	C402	08S65128F55	CP.,	680pF
	C403	08S65128F69	CP.,	0.01μF
	C405	08T90316F20	TF,	0.018μF
	C406	08T90316F20	TF,	0.018μF
	C407	08T90316F09	TF,	2200pF
	C408	08T50579F30	TF,	2200pF
	C409	08S82122F59	CP.,	820pF
	C410	08S82122F59	CP.,	820pF
	C411	08S82122F21	CP.,	22pF
	C412	08S82122F21	CP.,	22pF

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

	Symbol No.	Part No.	Description
	Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)		
	R401	06S64995F93	47K ohm
	R402	06S64995F93	47K ohm
	R403	06S64995F93	47K ohm
	R404	06S64995F93	47K ohm
	R405	06S64995F93	47K ohm
	R406	06S64995F93	47K ohm
	R407	06S64995F93	47K ohm
	R408	06S64995F93	47K ohm
	R409	06S64995F93	47K ohm
□	R410	06T70072F24	62 ohm 1/4W
■	R410	06T70072F25	68 ohm 1/4W
▲	R410	06T70072F24	62 ohm 1/4W
□	R411	06T70072F24	62 ohm 1/4W
■	R411	06T70072F25	68 ohm 1/4W
▲	R411	06T70072F24	62 ohm 1/4W
□	R412	06T70072F45	470 ohm 1/4W
■	R412	06T70072F51	820 ohm 1/4W
▲	R412	06T70072F45	470 ohm 1/4W
□	R414	06T70072F45	470 ohm 1/4W
■	R414	06T70072F51	820 ohm 1/4W
▲	R414	06T70072F45	470 ohm 1/4W
□	R415	06T70072F21	47 ohm 1/4W
■	R415	06T70072F25	68 ohm 1/4W
▲	R415	06T70072F21	47 ohm 1/4W
□	R416	06T70072F21	47 ohm 1/4W
■	R416	06T70072F25	68 ohm 1/4W
▲	R416	06T70072F21	47 ohm 1/4W
□	R417	06T70072F21	47 ohm 1/4W
■	R417	06T70072F25	68 ohm 1/4W
▲	R417	06T70072F21	47 ohm 1/4W
□	R418	06T70072F21	47 ohm 1/4W
■	R418	06T70072F31	120 ohm 1/4W
▲	R418	06T70072F21	47 ohm 1/4W
	R421	06S64995F85	22K ohm
	R422	06S64995F85	22K ohm
	R423	06S64995F85	22K ohm
	R424	06S64995F85	22K ohm
	R425	06S64995F67	3.9K ohm
	R426	06S64995F67	3.9K ohm
	R427	06S64995F67	3.9K ohm
	R428	06S64995F67	3.9K ohm
	R429	06S64996F26	1M ohm
	R430	06S64996F26	1M ohm
	VR401	18T15284W01	Slide (BASS)
	VR402	18T15284W01	Slide (TREBLE)

Symbol No.	Part No.	Description
MPX Control P. C. Board		
IC		
IC052	51T93333F01	NJM2904M
Transistors		
Q052	48T63417F01	CP., 2SC2412K
Q053	48T63420F01	CP., 2SA1037K
Diode / Coil		
D051	48T52446F01	CP., MA151WK
L051	24T50508F46	Inductor 1mH
Capacitors		
C050	08S65128F78	CP., 0.022μF
E050	23T25191W14	ELY., 10μF / 16V
E059	23T25191W30	ELY., 1μF / 50V
E060	23T25191W30	ELY., 1μF / 50V
C065	08S65128F61	CP., 2200pF
C066	08S65128F69	CP., 0.01μF
C067	08S65128F69	CP., 0.01μF
C068	08S65128F69	CP., 0.01μF
Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)		
R061	06S64995F77	10K ohm
R063	06S64995F81	15K ohm
R064	06S64996F02	100K ohm
R065	06S64995F41	330 ohm
R066	06S64995F85	22K ohm
R067	06S64996F02	100K ohm
R068	06S64995F81	15K ohm
R069	06S64995F77	10K ohm
R070	06S64996F02	100K ohm

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Symbol No.	Part No.	Description
R071	06S64996F14	330K ohm
R076	06S64995F77	10K ohm
R077	06S64996F04	120K ohm
R078	06S64995F21	47 ohm
R079	06S64996F02	100K ohm
R080	06S64996F02	100K ohm
R081	06S64996F20	560K ohm
R082	06S64996F26	1M ohm
VR051	18T60065F14	Variable, 15K ohm

GR Contorl P. C. Board

IC / Transistor

Symbol No.	Part No.	Description
IC1501	51T25621W01	IC, AN6275K
Q1501	48T84366F05	2SB1243

Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)

Symbol No.	Part No.	Description
R1501	06T70072F53	1K ohm 1/4W
R1502	06T70072F53	1K ohm 1/4W
R1503	06S64995F94	51K ohm
R1504	06S64995F77	10K ohm
R1505	06S53330F55	1.2K ohm 1/8W
R1506	06S53330F84	20K ohm 1/8W

GR Audio P. C. Board

IC / Diode

Symbol No.	Part No.	Description
IC1201	51T15146W01	IC, TA7705P
D1201	48T44813F01	MA165TA

Capacitors

Symbol No.	Part No.	Description
E1201	23T25149W09	ELY., 10μF / 16V
C1202	08T35389W07	TF, 330pF
E1202	23T25149W13	ELY., 100μF / 10V
C1203	08T35389W07	TF, 330pF
E1203	23T25149W13	ELY., 100μF / 10V

Symbol No.	Part No.	Description
C1204	08T35389W07	TF, 330pF
E1204	23T25149W12	ELY., 47μF / 16V
C1205	08T35389W07	TF, 330pF
E1205	23T25149W08	ELY., 4.7μF / 50V
E1206	23T25149W08	ELY., 4.7μF / 50V
C1208	08T35122W02	TF, 0.012μF
C1209	08T35122W02	TF, 0.012μF

Resistors (All resistors are chip 1/10W ± 5% unless otherwise noted.)

Symbol No.	Part No.	Description
R1201	06S53330F29	100 ohm 1/8W
R1202	06S53330F32	130 ohm 1/8W
R1203	06S53330F32	130 ohm 1/8W
R1204	06S64996F14	330K ohm
R1205	06S64996F14	330K ohm
R1208	06S64995F78	11K ohm
R1209	06S64995F78	11K ohm
R1210	06S64995F81	15K ohm
R1211	06S64995F81	15K ohm
R1212	06S64995F65	3.3K ohm
R1213	06S53330F65	3.3K ohm 1/8W
R1214	06S53330F85	22K ohm 1/8W
R1215	06S64995F85	22K ohm

Miscellaneous

Symbol No.	Part No.	Description
BA801	60T25650W02	Battery, Lit. CR2032
or	60T91060F03	Battery, Lit. CR2032
ET801	01T25803W07	QRB, Socket
HD1101	88T15971W01	Head
□ LCD401	65T35189W01	LCD, Display (6N5051B)
■ LCD401	65T35473W01	LCD, Display (LU1740)
▲ LCD401	65T35189W01	LCD, Display (6N5051B)
M1501	01V23900W60	Assy., Motor (13.2V - 105mA)
PT1501	51T15144W01	Sensor, Photo
S1501	40T15222W01	Switch, Detector (PACK IN)
S1502	40T15382W01	Switch, Detector (PACK DOWN)
S1503	40T15382W01	Switch, Detector (METAL)
SD1501	01T10369W02	Assy., Eject Solenoid
SD1502	01T15249W01	Assy., Play Solenoid
SD1503	01T10371W01	Assy., RF Solenoid

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Cabinet Assembly Parts List

Notes : ● The parts without parts list are not supplied.
● Parts marked * will need a long delivery time, or may be not supplied in some cases.

Symbol No.	Index	Part No.	Description
□ 1	4-B	13D30284W05	Assy., Nosepiece
■ 1	4-B	13D30284W06	Assy., Nosepiece
▲ 1	4-B	13D30284W04	Assy., Nosepiece
2	1-E	15C21584W01	Cover, Top
4	5-B	07C21606W01	Assy., Bracket Handle
6	4-B	36A94114F01	Knob, Control (Front)
7	4-B	36A94115F01	Knob, Control (Back)
8	4-B	36B22527W01	Knob, Slide (A)
9	4-B	36B22527W02	Knob, Slide(B)
11	3-A	14A21597W01	Insulator, Door
12		03S44205G07	Screw, Pan (M2.6 x 5)
13		03S44205G34	Screw, Pan (M2.6 x 5)
14		03S71677F06	Screw, Flange (M2.6 x 6)
15	3-C	03C42723U08	Screw, Cup (M2.6 x 5.5)
16		03S44205G42	Screw, Pan (M2.6 x 4)
17	5-F	03D40014G41	Screw, W/Washer (M2.6 x 20)
18		03S52360F78	Screw, Pan (M2.6 x 8)
19	3-F	42T93247F05	Clamp, Wire
*20	2-D	81D31360W01	Cassette Deck, GR75L02Y
22	2-C	41A20424W01	Spring, Door
24	3-F	77C30794W01	FM/AM Tuner, MB4R901B (FE001)
28	2-D	09T84840F01	Lug, Style 18mm
*29	2-B	01V31800W94	Assy., Front P.C.Board
30	3-B	61A21582W01	Lens, LCD
31	3-B	15B21583W01	Case, LCD
□ 32	3-B	26A21581W01	Reflector, Sheet
■ 32	3-B	26A21581W03	Reflector, Sheet
▲ 32	3-B	26A21581W01	Reflector, Sheet
33	3-B	26A21581W02	Reflector, Sheet
□ 34	3-A	26A83087F14	Reflector, Sheet
■ 34	3-A	26A83087F20	Reflector, Sheet
▲ 34	3-A	26A83087F14	Reflector, Sheet
35	3-A	07B21580W01	Bracket, Shield
37	4-F	01T16472W03	Assy., Lug Wire GND
40	2-B	75S30010W07	Cushion, Rubber

Symbol No.	Index	Part No.	Description

Notes : □ : For 7516M Model only, ■ : For 7516MM Model only,
▲ : For 7516L Model only, Others : Common.

Exploded View

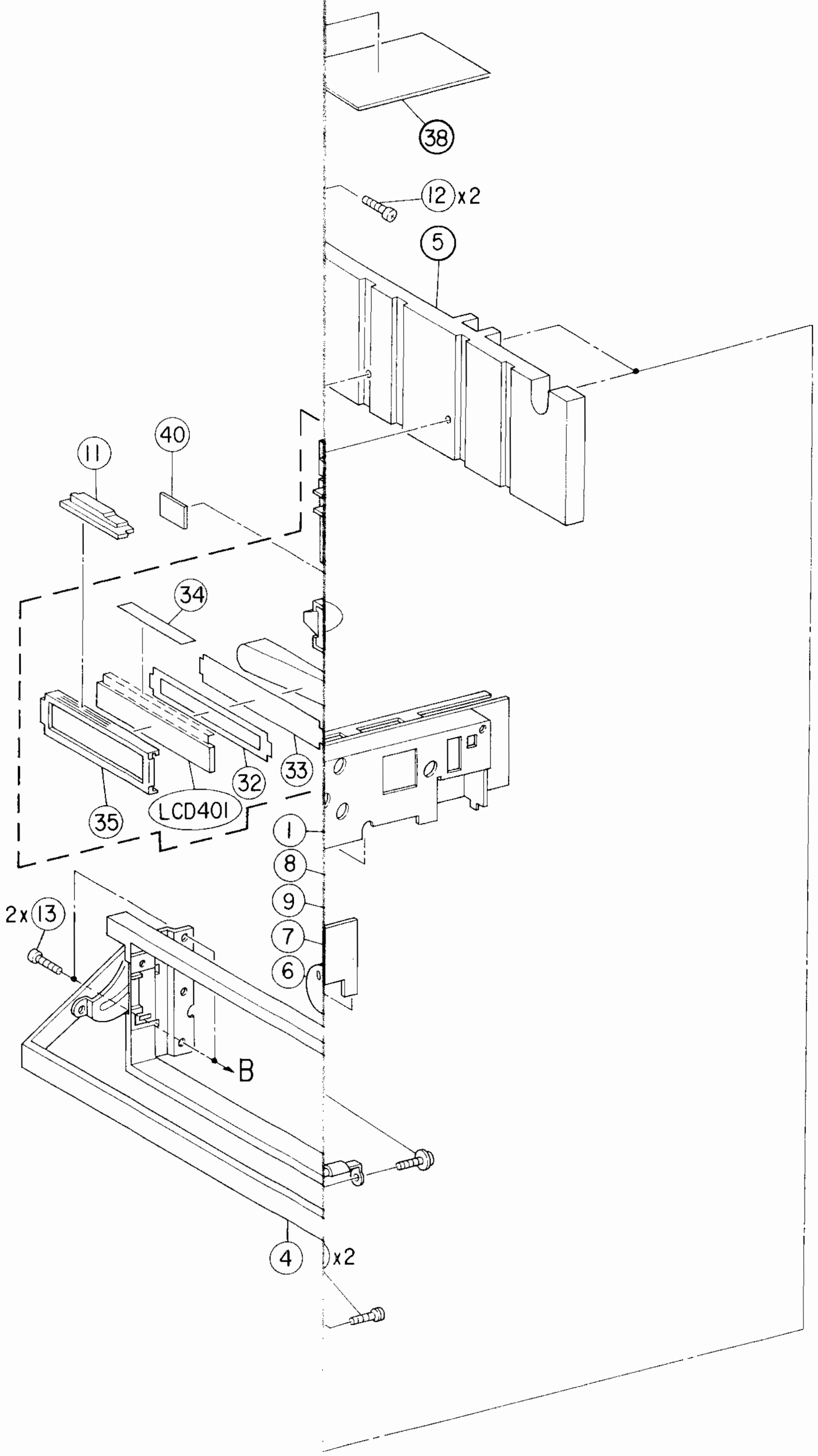
1

2

3

4

5

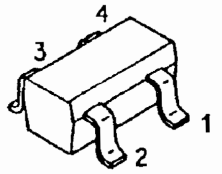

38
12 x2
5
40
11
34
33
32
LCD401
35
1
8
9
7
6
2x 13
B
4
x2

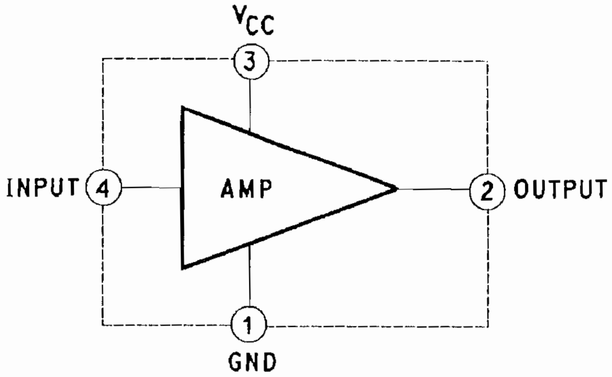
A

G

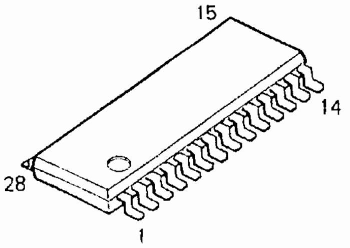
Semi-Conductor Lead Identifications

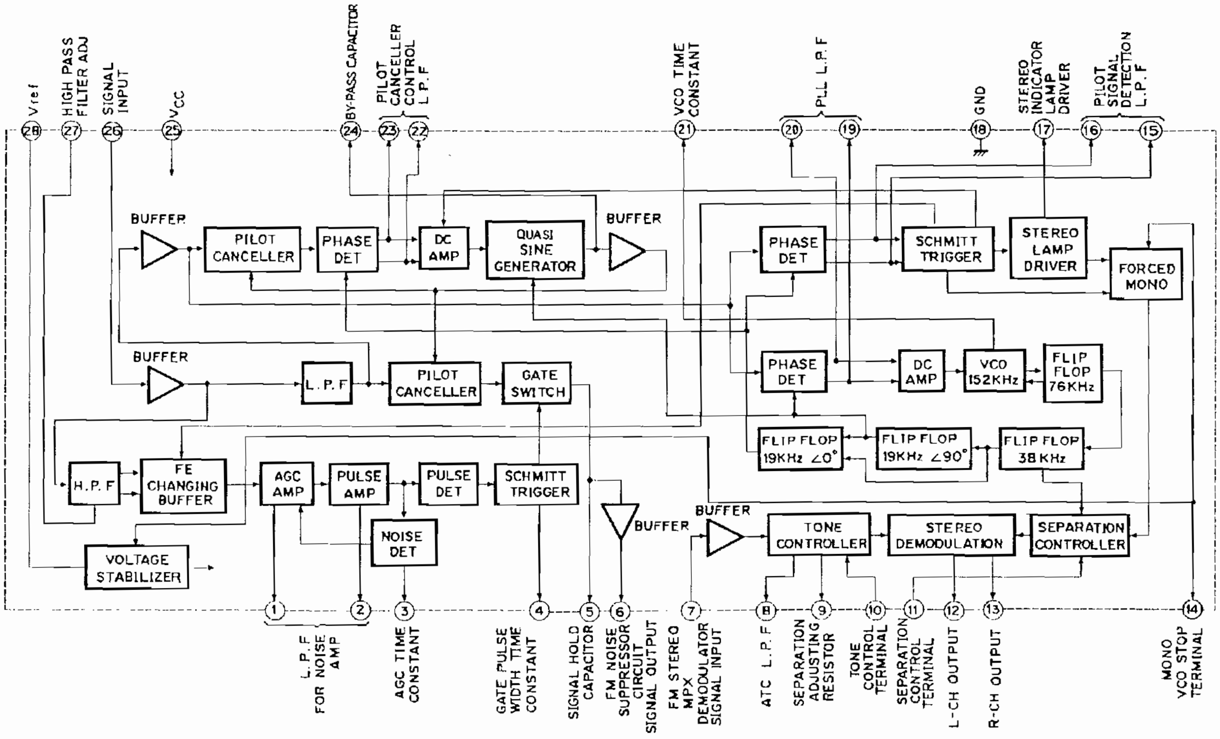
µPC1675G : IC001



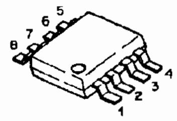

V_{CC}
3
INPUT
4
AMP
2
OUTPUT
1
GND

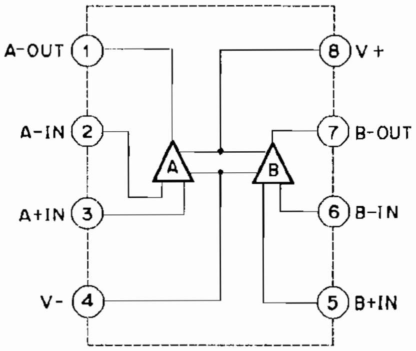
AN7465S : IC051



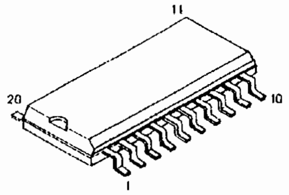

Vref
HIGH PASS FILTER ADJ
SIGNAL INPUT
V_{CC}
BY-PASS CAPACITOR
PILOT CANCELLER CONTROL L.P.F
VCO TIME CONSTANT
PLL L.P.F
GND
STEREO INDICATOR LAMP DRIVER
PILOT SIGNAL DETECTION L.P.F
28
27
26
25
24
23
22
21
20
19
18
17
16
15
BUFFER
PILOT CANCELLER
PHASE DET
DC AMP
QUASI SINE GENERATOR
BUFFER
PHASE DET
SCHMITT TRIGGER
STEREO LAMP DRIVER
FORCED MONO
BUFFER
L.P.F
PILOT CANCELLER
GATE SWITCH
PHASE DET
DC AMP
VCO 152KHz
FLIP FLOP 76KHz
FLIP FLOP 19KHz ∠0°
FLIP FLOP 19KHz ∠90°
FLIP FLOP 38KHz
H.P.F
FE CHANGING BUFFER
AGC AMP
PULSE AMP
PULSE DET
SCHMITT TRIGGER
NOISE DET
BUFFER
BUFFER
TONE CONTROLLER
STEREO DEMODULATION
SEPARATION CONTROLLER
VOLTAGE STABILIZER
1
2
3
4
5
6
7
8
9
10
11
12
13
14
L.P.F FOR NOISE AMP
AGC TIME CONSTANT
GATE PULSE WIDTH TIME CONSTANT
SIGNAL HOLD CAPACITOR
FM NOISE SUPPRESSOR CIRCUIT SIGNAL OUTPUT
FM STEREO MPX DEMODULATOR SIGNAL INPUT
ATC L.P.F
SEPARATION ADJUSTING RESISTOR
TONE CONTROL TERMINAL
SEPARATION CONTROL TERMINAL
L-CH OUTPUT
R-CH OUTPUT
MONO VCO STOP TERMINAL

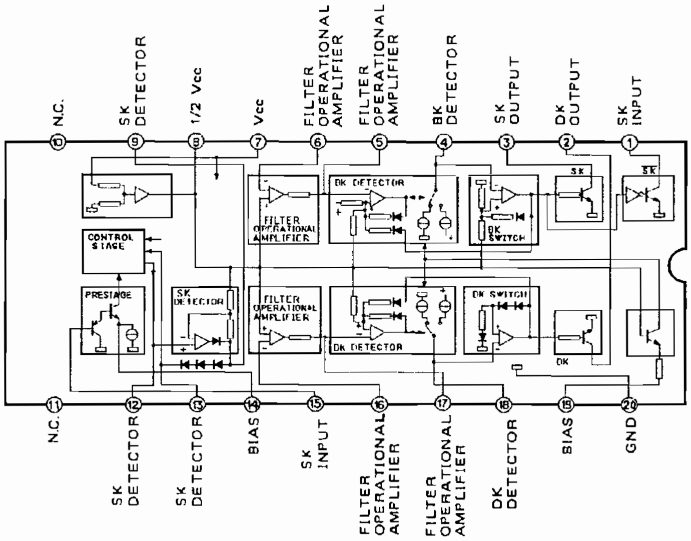
NJM2904M : IC052



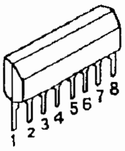

A-OUT 1
A-IN 2
A+IN 3
V- 4
8 V+
7 B-OUT
6 B-IN
5 B+IN
A
B

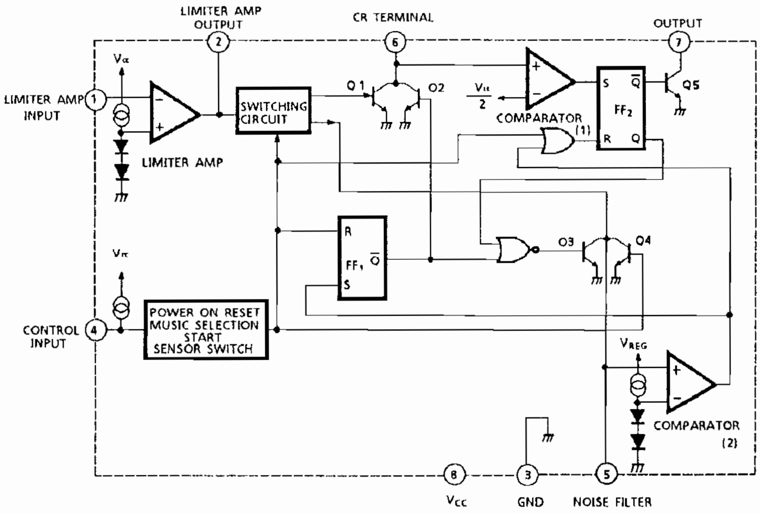
□, ■**TDA1579T** : IC101




N.C. 10
SK DETECTOR 9
1/2 Vcc 8
Vcc 7
FILTER OPERATIONAL AMPLIFIER 6
FILTER OPERATIONAL AMPLIFIER 5
BK DETECTOR 4
SK OUTPUT 3
DK OUTPUT 2
SK INPUT 1
N.C. 11
SK DETECTOR 12
SK DETECTOR 13
BIAS 14
SK INPUT 15
FILTER OPERATIONAL AMPLIFIER 16
FILTER OPERATIONAL AMPLIFIER 17
DK DETECTOR 18
BIAS 19
GND 20
CONTROL STAGE
PRESTAGE
SK DETECTOR
FILTER OPERATIONAL AMPLIFIER
DK DETECTOR
BK SWITCH
SK
DK SWITCH
DK

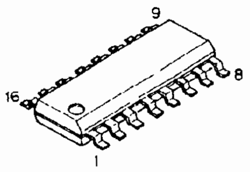
M51143AL : IC201

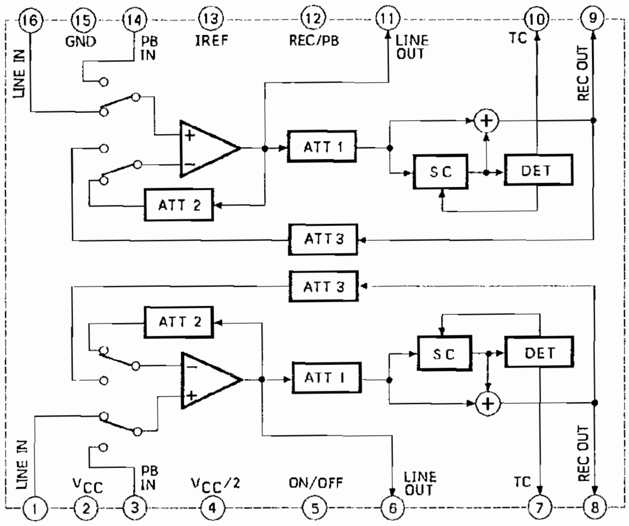



LIMITER AMP OUTPUT 2
CR TERMINAL 6
OUTPUT 7
LIMITER AMP INPUT 1
Vα
LIMITER AMP
SWITCHING CIRCUIT
Q1
Q2
Vα/2
COMPARATOR (1)
FF2
S Q̄
R Q
Q5
Q3
Q4
R
FF1 Q̄
S
Vτ
CONTROL INPUT 4
POWER ON RESET MUSIC SELECTION START SENSOR SWITCH
VREG
COMPARATOR (2)
8 Vcc
3 GND
5 NOISE FILTER

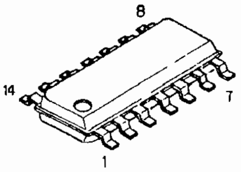
Notes : □ : For 7516M Model Only, ■ : For 7516MM Model Only, ▲ : For 7516L Model Only, Others : Common.

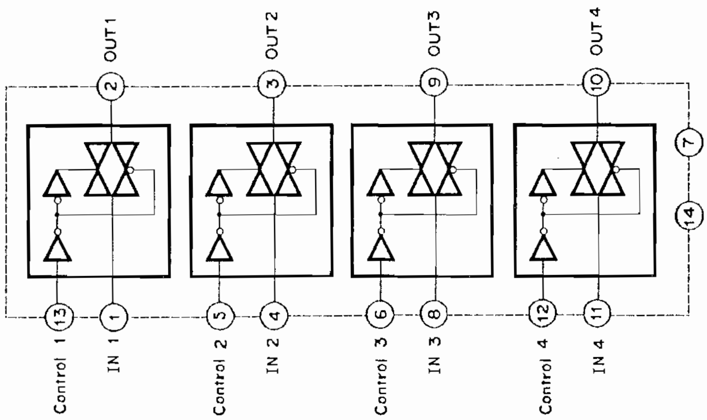
CXA1163M : IC202



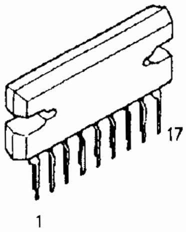

16
15
14
13
12
11
10
9
LINE IN
GND
PB IN
IREF
REC/PB
LINE OUT
TC
REC OUT
ATT 1
ATT 2
ATT 3
SC
DET
ATT 3
ATT 2
SC
DET
ATT I
LINE IN
VCC
PB IN
VCC/2
ON/OFF
LINE OUT
TC
REC OUT
1
2
3
4
5
6
7
8

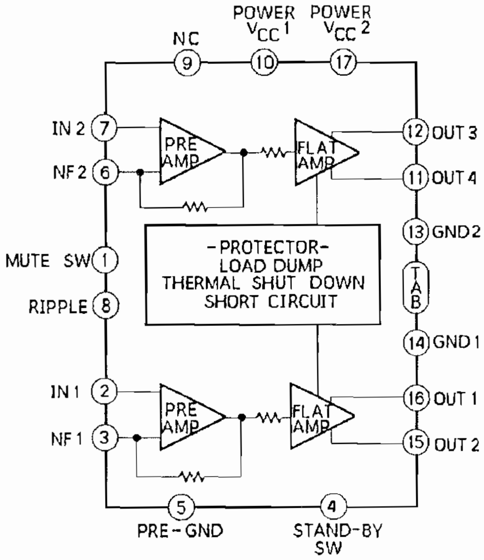
MC14066BFL1 : IC203



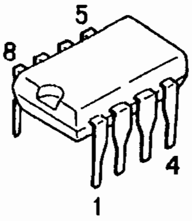

OUT 1
OUT 2
OUT 3
OUT 4
2
3
9
10
7 VSS
14 VDD
13
1
5
4
6
8
12
11
Control 1
IN 1
Control 2
IN 2
Control 3
IN 3
Control 4
IN 4

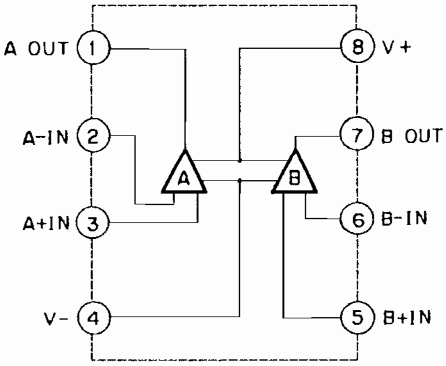
TA8221H : IC301



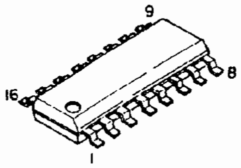

NC
POWER VCC 1
POWER VCC 2
9
10
17
IN 2 7
NF 2 6
PRE AMP
FLAT AMP
12 OUT 3
11 OUT 4
13 GND 2
TAB
14 GND 1
MUTE SW 1
RIPPLE 8
-PROTECTOR-
LOAD DUMP
THERMAL SHUT DOWN
SHORT CIRCUIT
IN 1 2
NF 1 3
PRE AMP
FLAT AMP
16 OUT 1
15 OUT 2
5
4
PRE-GND
STAND-BY SW

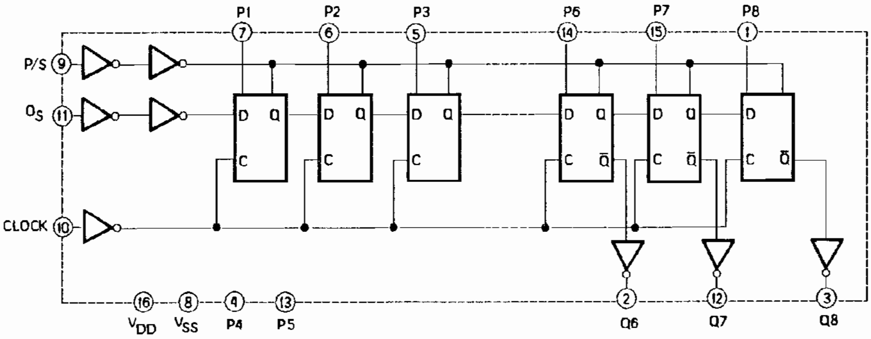
BA4560F : IC302, 304, 403, 803



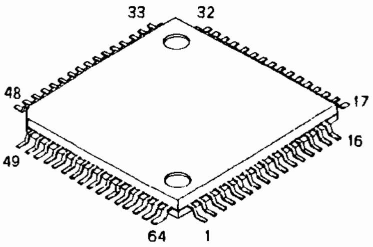

A OUT 1
A-IN 2
A+IN 3
V- 4
8 V+
7 B OUT
6 B-IN
5 B+IN
A
B

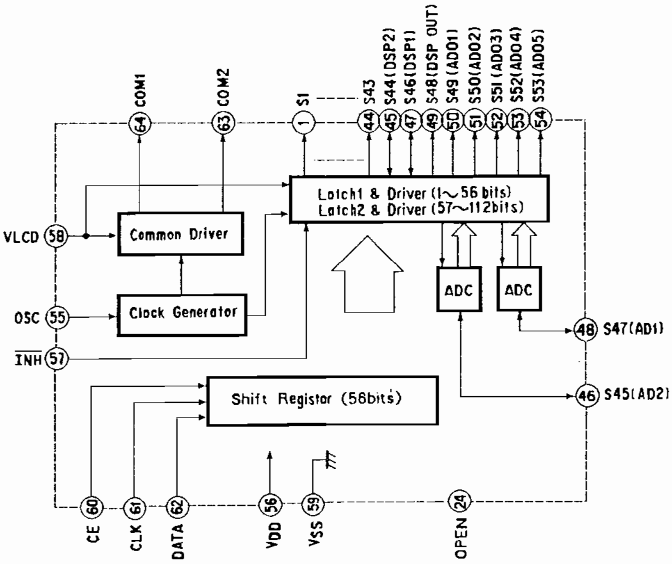
MC14014BFEL : IC401



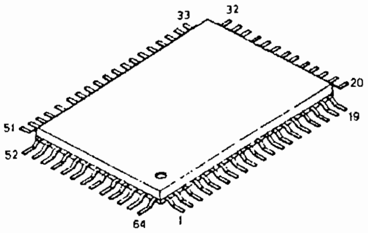

P1 7
P2 6
P3 5
P6 14
P7 15
P8 1
P/S 9
O_S 11
CLOCK 10
D Q
C
D Q
C $\bar{Q}$
16 V_{DD}
8 V_{SS}
4 P4
13 P5
2 Q6
12 Q7
3 Q8

LC7582A : IC402


33
32
48
17
16
49
64
1

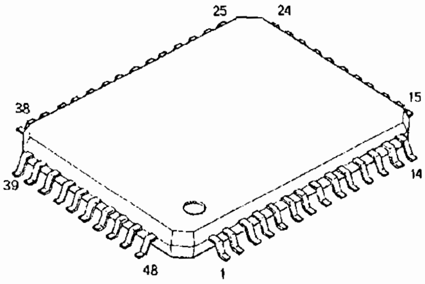

64 COM1
63 COM2
1 S1
44 S43
45 S44(DSP2)
47 S46(DSP1)
49 S48(DSP OUT)
50 S49(AD01)
51 S50(AD02)
52 S51(AD03)
53 S52(AD04)
54 S53(AD05)
Latch1 & Driver (1~56 bits)
Latch2 & Driver (57~112bits)
VLCD 58
Common Driver
OSC 55
Clock Generator
INH 57
ADC
ADC
48 S47(AD1)
46 S45(AD2)
Shift Register (56bits)
60 CE
61 CLK
62 DATA
56 VDD
59 VSS
24 OPEN

35044W01 : IC501



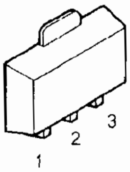
PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O
1	RUN DET	I	23	NC	–	45	LCD DATA	O
2	PACK DOWN	I	24	DOLBY B	O	46	LCD CLK	O
3	PLAY SOL.	O	25	KEY P/S	O	47	LCD CE	O
4	RF SOL.	O	26	V_{SS}	–	48	NC	–
5	EJE SOL.	O	27	PWR SW ON	I	49	LOUD	O
6	MOTOR CONT	O	28	IGN+5	I	50	NC	–
7	RESET	I	29	CHG IN	I	51	RADIO/TAPE	O
8	X2	O	30	BAT+5	I	52	CHG.D	O
9	X1	I	31	AREA 1	I	53	DMUTE	I
10	LEVEL O. FAST	O	32	AREA 0	I	54	STRT	I
11	MOTOR FAST	O	33	GND	–	55	KEY IN	I
12	O. MOTOR	O	34	GND	–	56	EJECT	I
13	FOR/REV	O	35	GND	–	57	V_{DD}	–
14	PACK IN SW	I	36	GND	–	58	V_{DD}	–
15	GND	–	37	PWR IC ON	O	59	MUTE	O
16	MS DET	I	38	NC	–	60	OUT REM	O
17	MS DET	I	39	NC	–	61	OUT INT	O
18	LCD INH	O	40	SDK BUZ	O	62	IN INT	I
19	PWR ON	O	41	STS	I	63	IN PAU	I
20	OTSCE	O	42	CMD	O	64	NC	–
21	BUZ ON	O	43	SCK	I			
22	CHG ON	O	44	VOL PUSH	I			

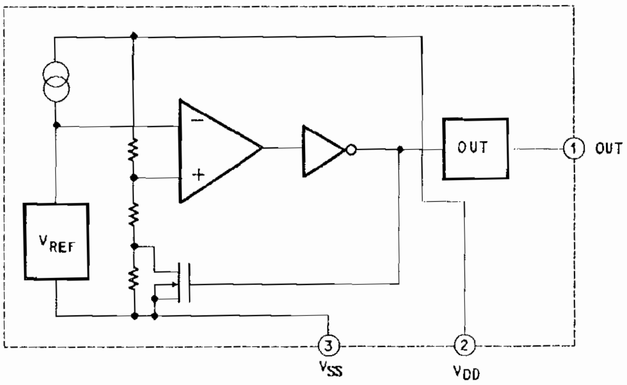
35246W01 : IC502



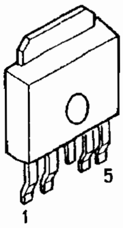
PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O	PIN NO.	CORD ADDRESS	I/O
1	E01	O	23	NC	—	45	$\overline{\text{STEREO}}$	I
2	NC	—	24	TUNER ON	O	46	SD	I
3	V_{DD}	—	25	$\overline{\text{LW}}$	O	47	S.METER	I
4	NC	—	26	AM	O	48	CI	I
5	VCOH	I	27	LW	O	49		
6	CE	I	28	NC	—	50		
7	V_{DD}	—	29	NC	—	51		
8	NC	—	30	NC	—	52		
9	MONO	O	31	NC	—	53		
10	NC	—	32	GND	—	54		
11	NC	—	33	GND	—	55		
12	AM IF	I	34	GND	—	56		
13	FM IF	I	35	GND	—	57		
14	COMMAND	I	36	GND	—	58		
15	$\overline{\text{SCK}}$	O	37	GND	—	59		
16	STATUS	O	38	GND	—	60		
17	STRT	O	39	GND	—	61		
18	$\overline{\text{MUTE}}$	O	40	GND	—	62		
19	LOCAL	O	41	GND	—	63		
20	X0	—	42	GND	—	64		
21	X1	—	43	DK	I			
22	GND	—	44	SK	I			

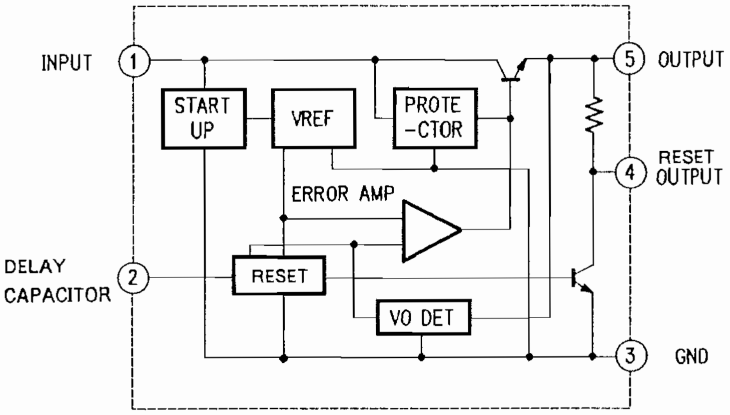
S-8052HNM-CR : IC503



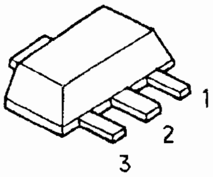


L78LR05DFA : IC801

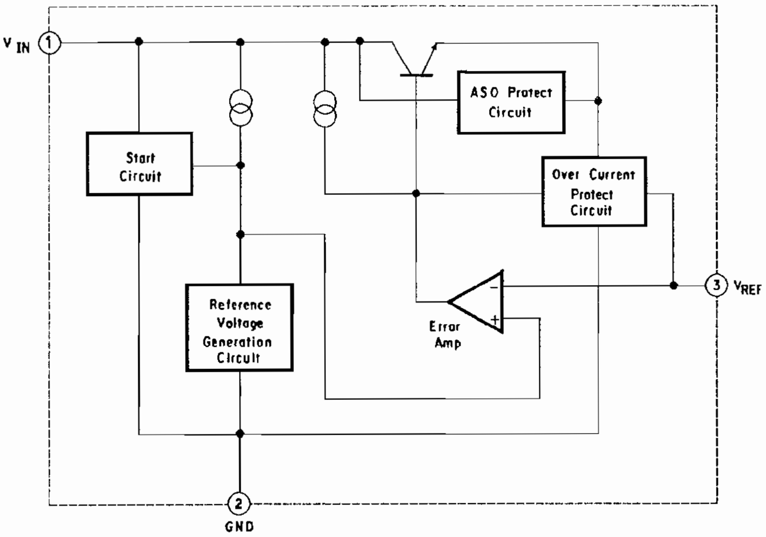



INPUT
1
START UP
VREF
PROTE -CTOR
5
OUTPUT
4
RESET OUTPUT
ERROR AMP
DELAY CAPACITOR
2
RESET
VO DET
3
GND

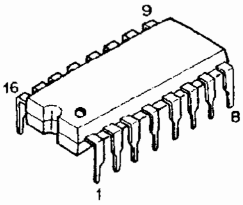
M5236ML : IC802

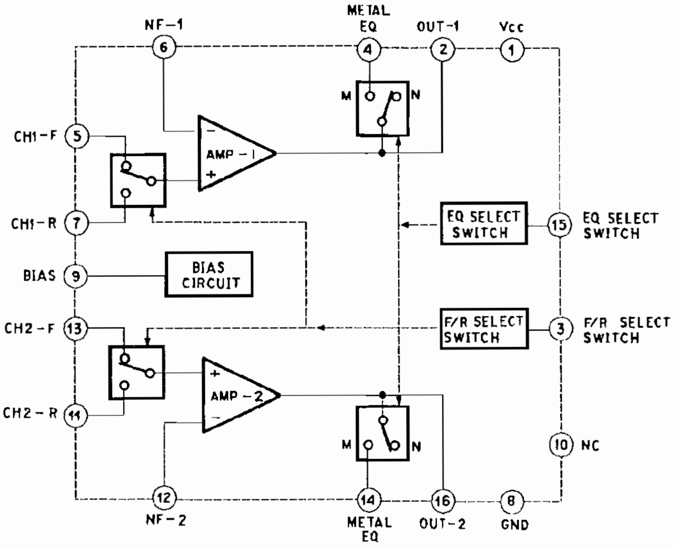


1 : V_{IN}
2 : GND
3 : V_{REF}

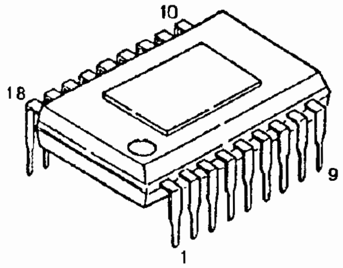

V IN
1
Start Circuit
ASO Protect Circuit
Over Current Protect Circuit
Reference Voltage Generation Circuit
Error Amp
3
VREF
2
GND

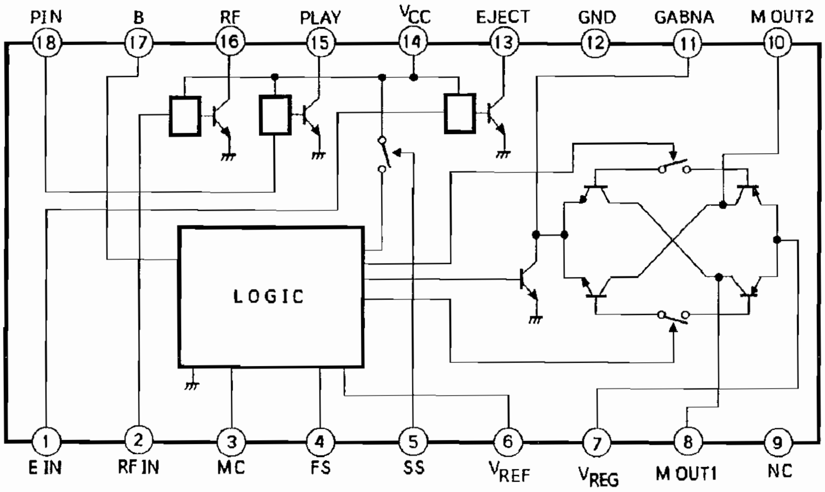
TA7705P : IC1201 (GR75L02Y)




NF-1
6
METAL EQ
4
OUT-1
2
Vcc
1
M
N
CH1-F
5
AMP-1
CH1-R
7
EQ SELECT SWITCH
15
EQ SELECT SWITCH
BIAS
9
BIAS CIRCUIT
CH2-F
13
F/R SELECT SWITCH
3
F/R SELECT SWITCH
AMP-2
CH2-R
11
M
N
10
NC
12
NF-2
14
METAL EQ
16
OUT-2
8
GND

AN6275K : IC1501 (GR75L02Y)




PIN
18
B
17
RF
16
PLAY
15
VCC
14
EJECT
13
GND
12
GABNA
11
M OUT2
10
LOGIC
1
E IN
2
RF IN
3
MC
4
FS
5
SS
6
VREF
7
VREG
8
M OUT1
9
NC

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